

وزارة الزراعة و الإصلاح الزراعي
NAPC
المركز الوطني للسياسات الزراعية

مشروع GCP/SYR/006/ITA - المرحلة الثانية



منظمة الأغذية
والزراعة للأمم المتحدة

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وزارة الزراعة
و الإصلاح الزراعي

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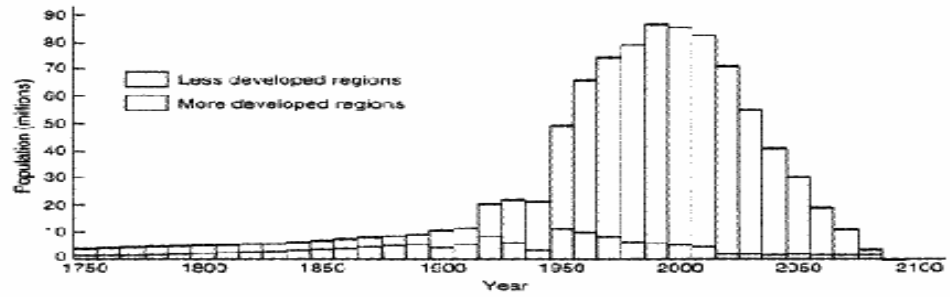
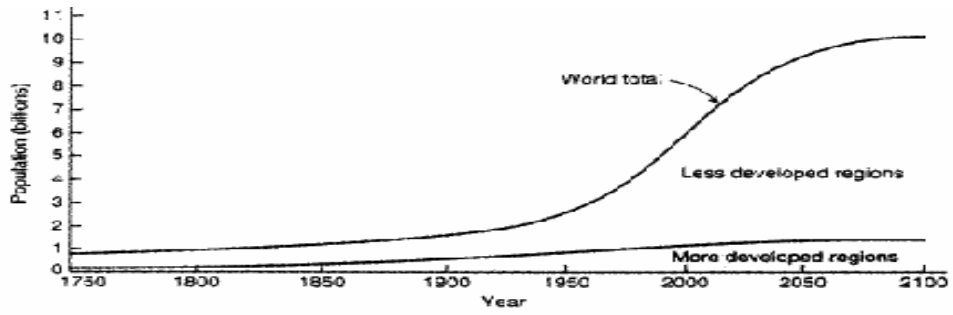
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0.04	250	A.D. 1
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0.45	906	1800
0.53	1,171	1850
0.65	1,608	1900
0.91	2,576	1950
2.09	3,698	1970
1.76	4,448	1980
1.73	5,292	1990
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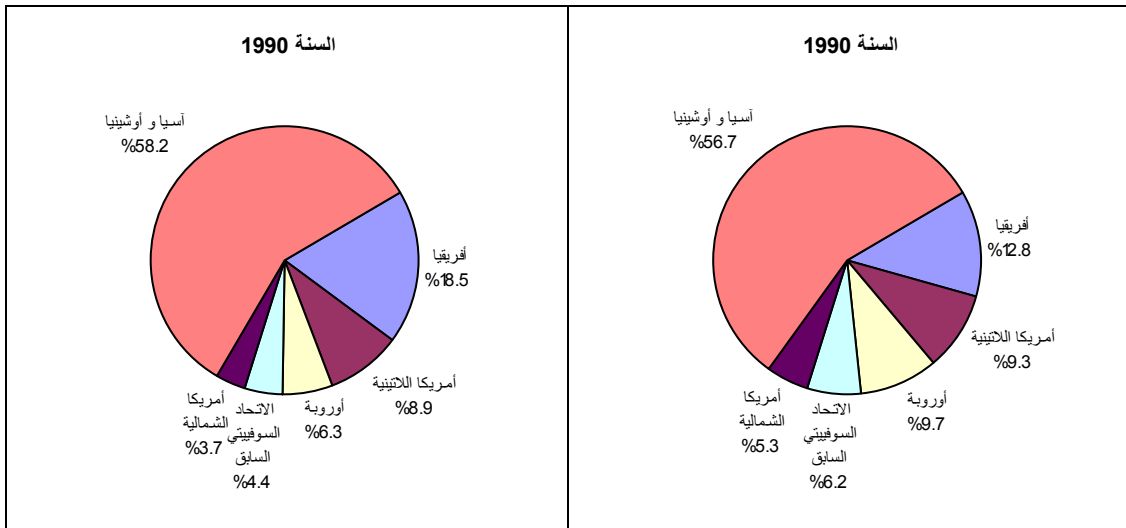
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35,000	0.002	
240	0.3	1650-1750
115	0.6	1850-1900
70	1.0	1930-1950
31	2.3	1960-1980
43	1.7	

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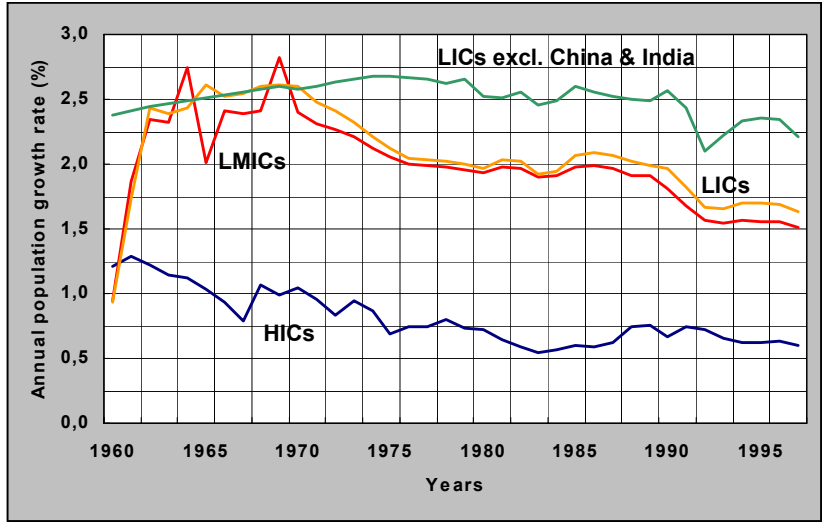
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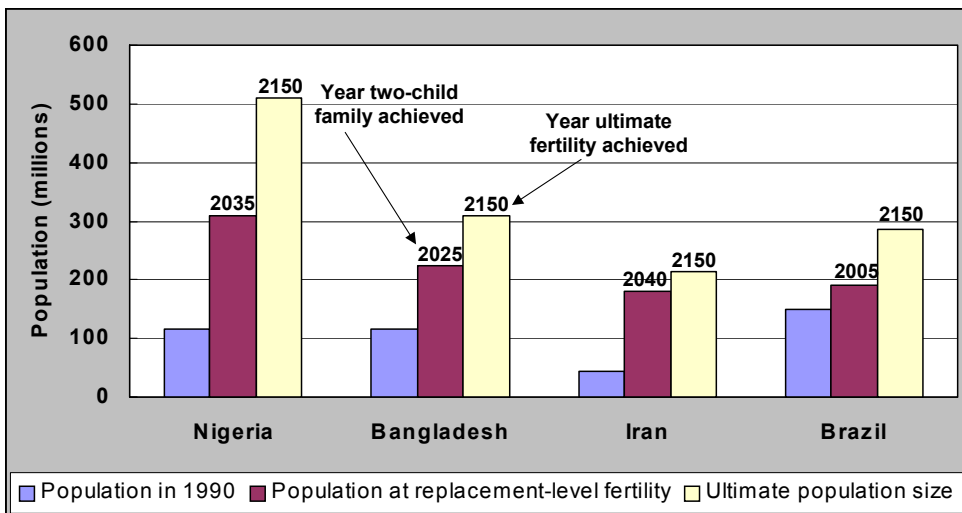
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2000	1990	1980	1970	1960	
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0.582	0.656	0.711	0.777	0.755	
0.626	0.670	0.750	0.811	0.779	
0.644	0.675	0.768	0.826	0.791	
0.804	0.857	0.900	0.905	0.834	
0.509	0.546	0.706	0.813	0.788	
0.508	0.550	0.561	0.599	0.603	
0.607	0.691	0.794	0.882	0.867	
0.729	0.861	0.910	0.963	0.899	
0.681	0.730	0.781	0.822	0.781	
0.905	0.937	0.938	0.912	0.867	

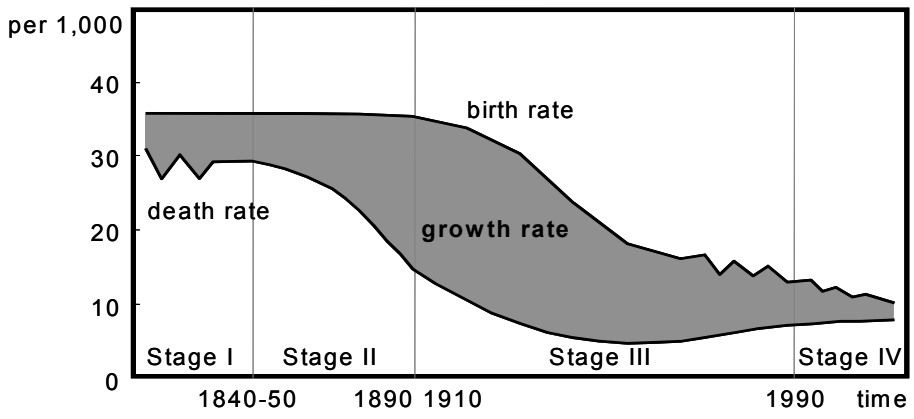
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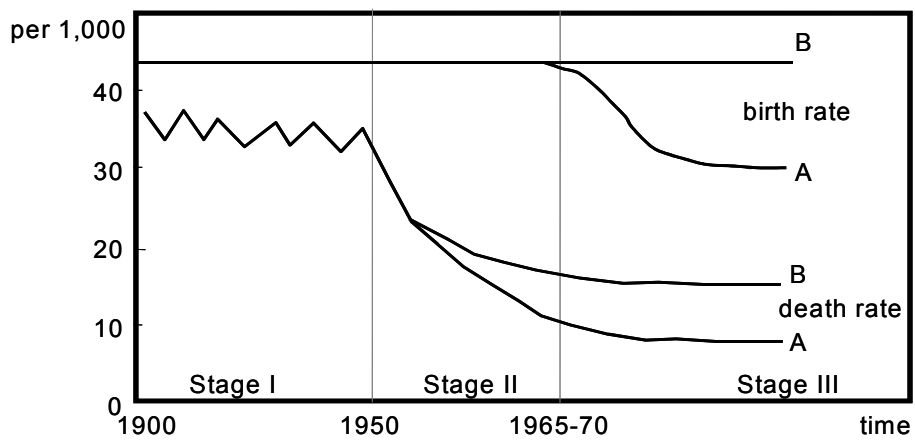
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$C_d ($)

G_p

(I_1, I_2, I_3, I_4)

E_2

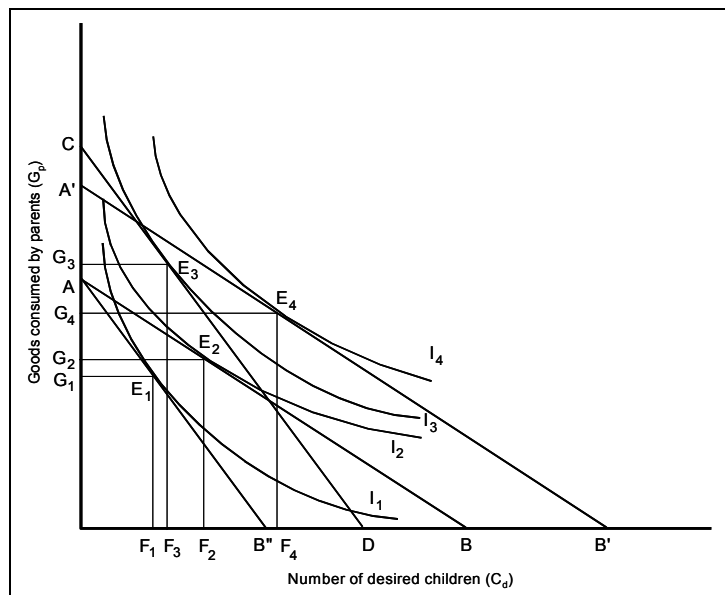
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F_2

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E_4)

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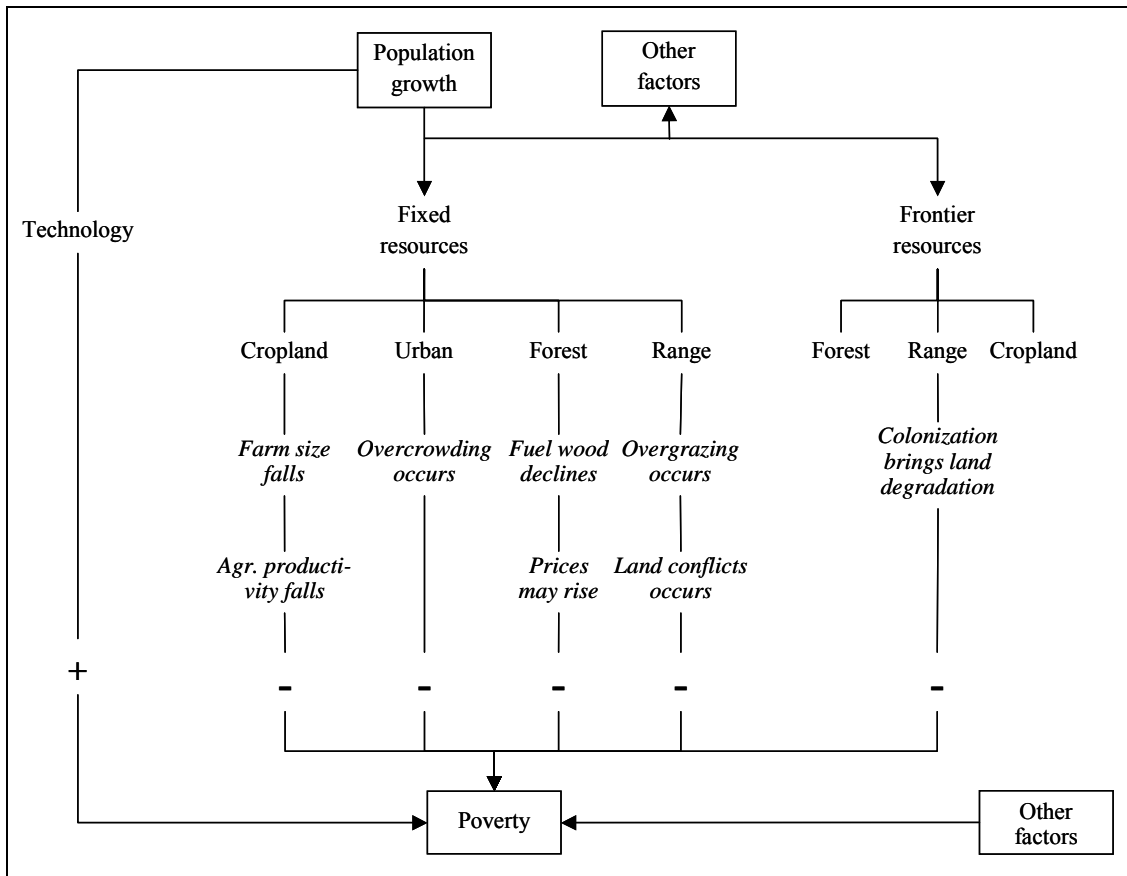
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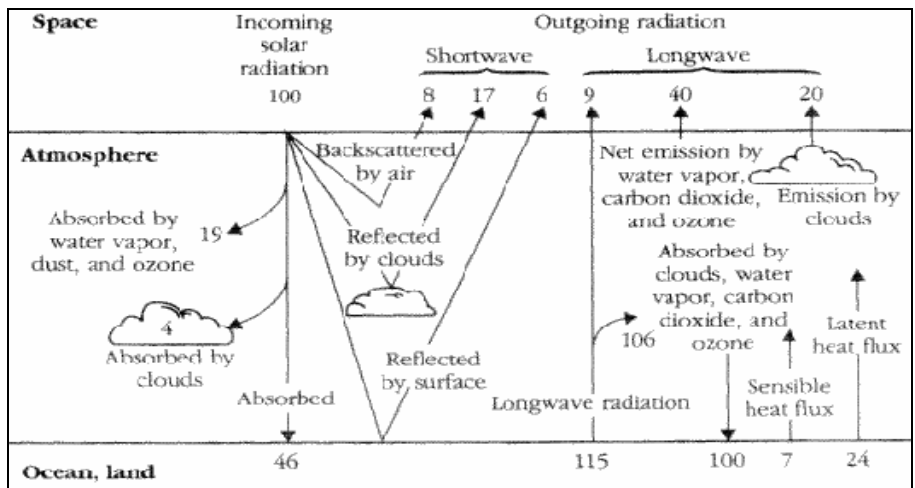
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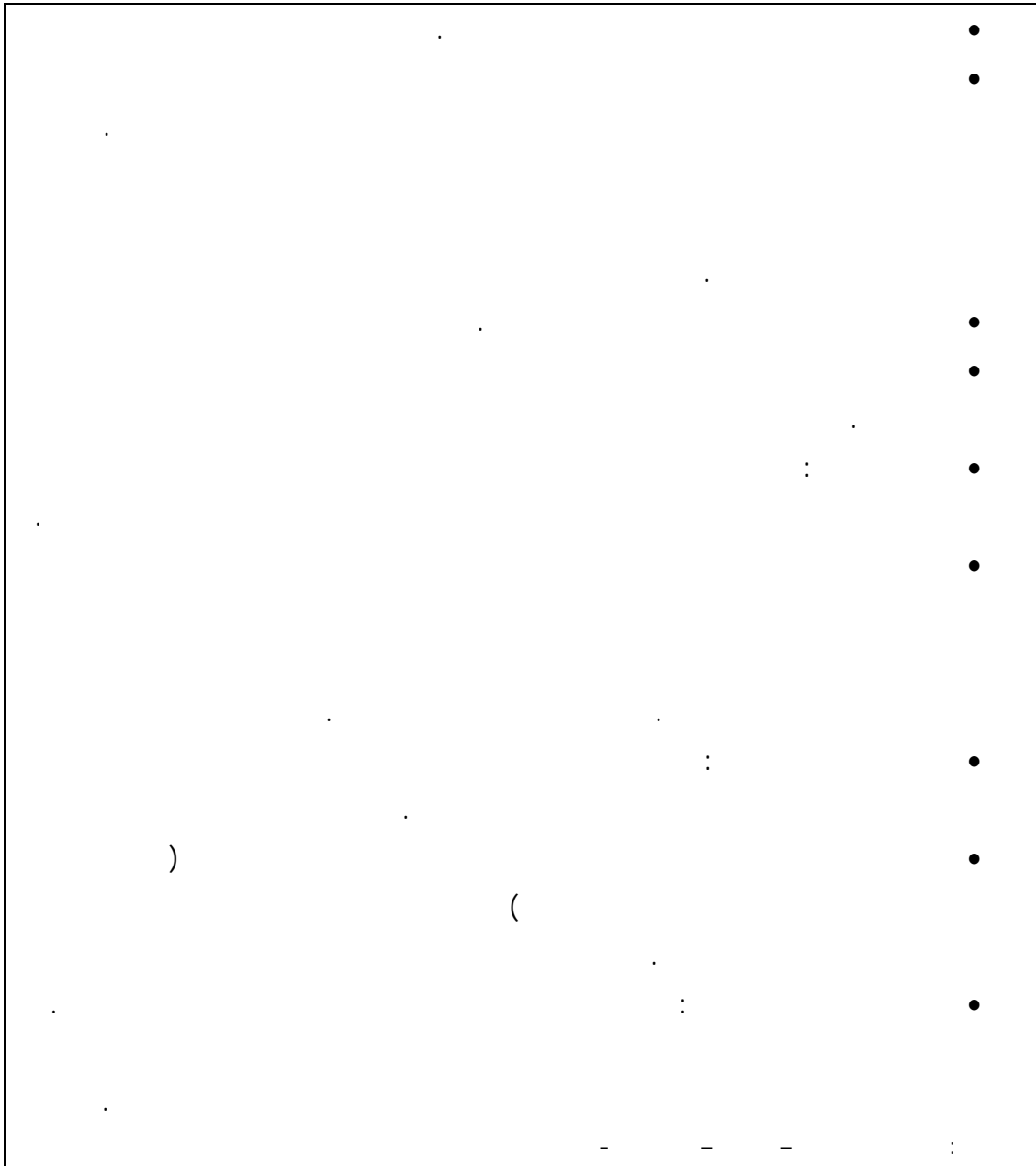
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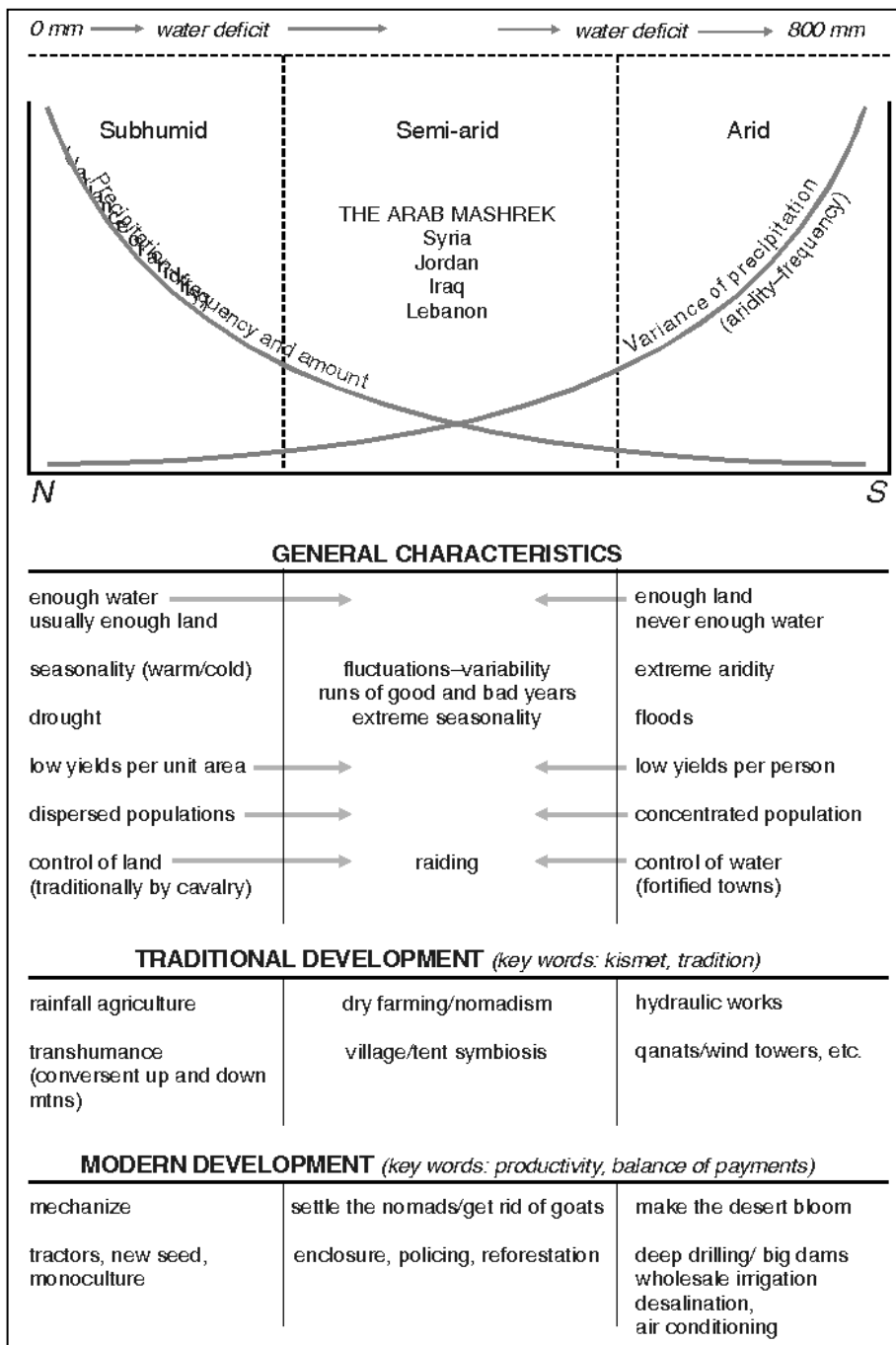
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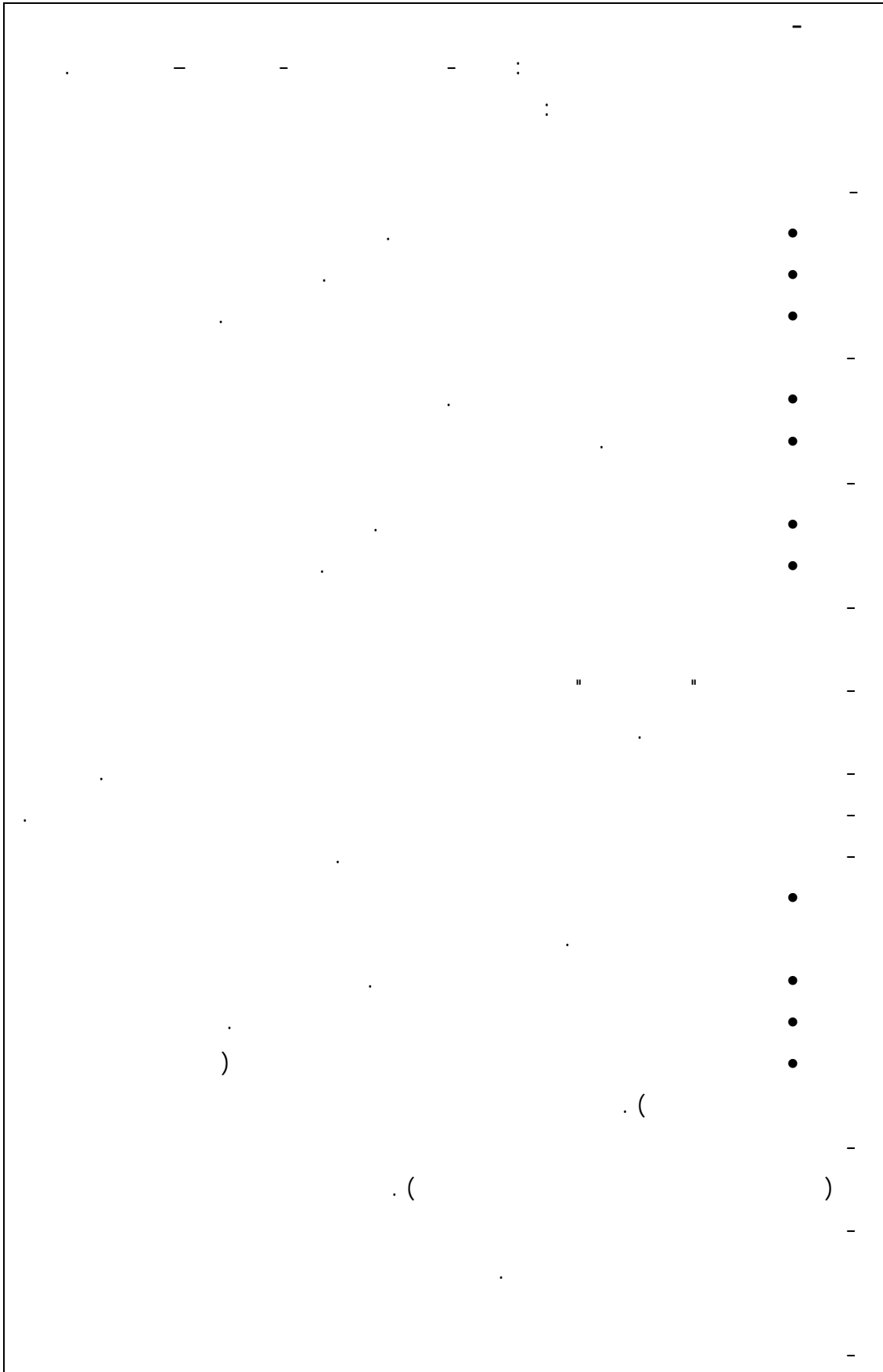
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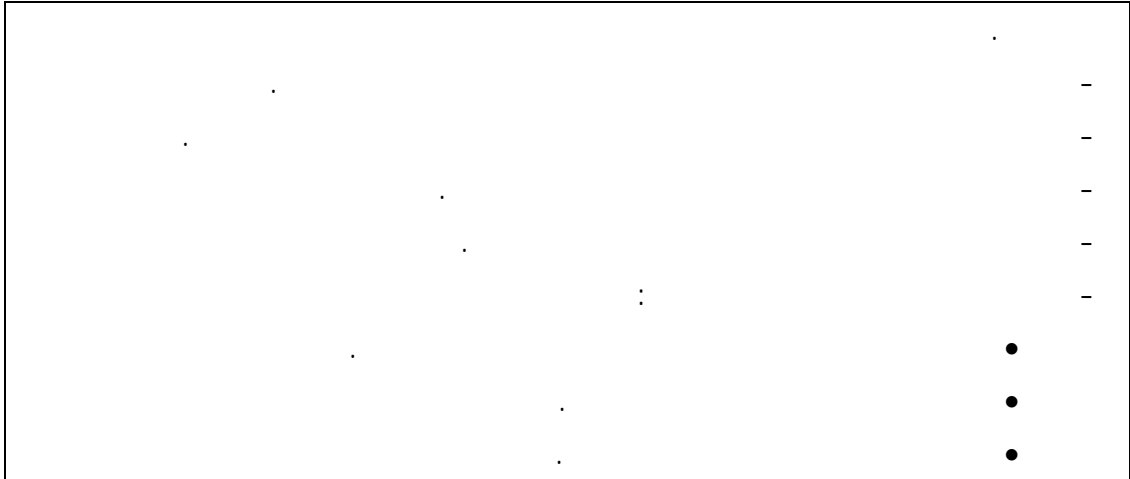
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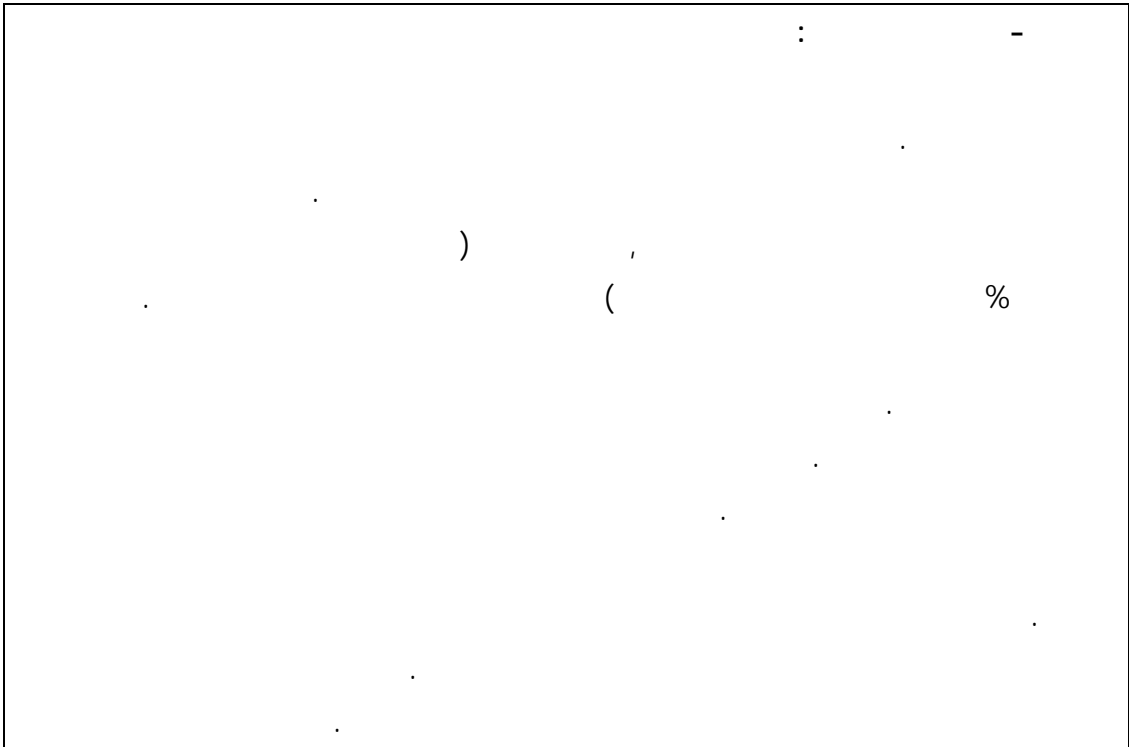
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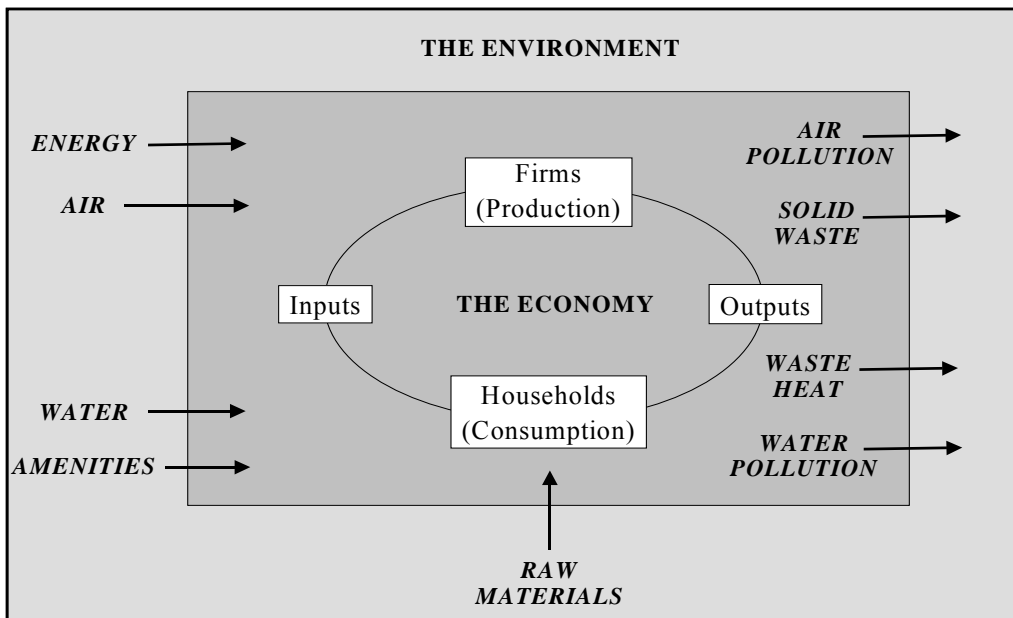
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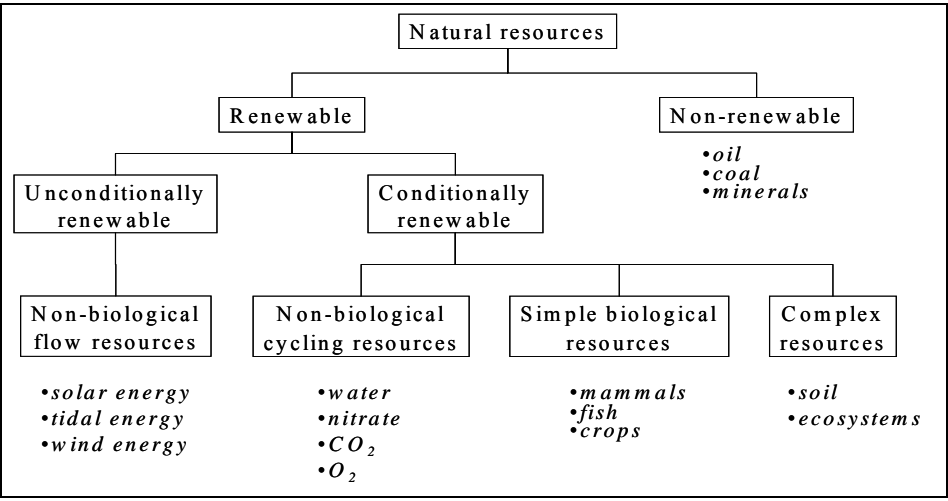
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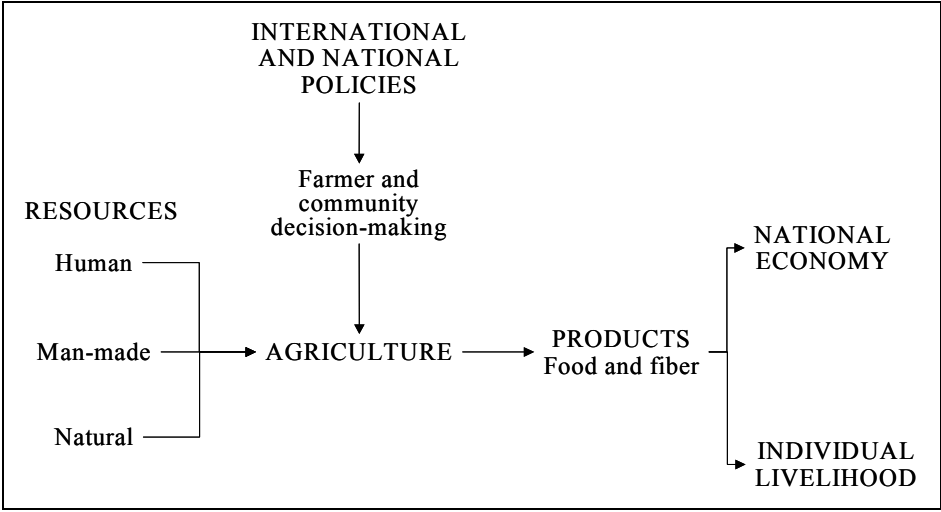
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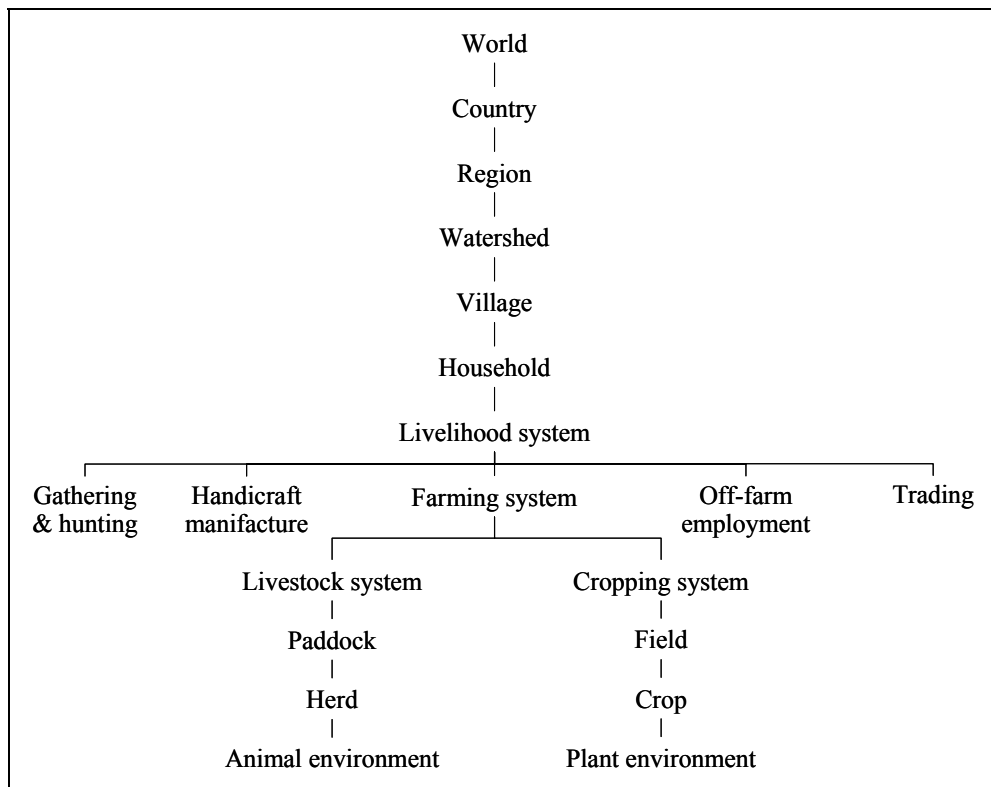
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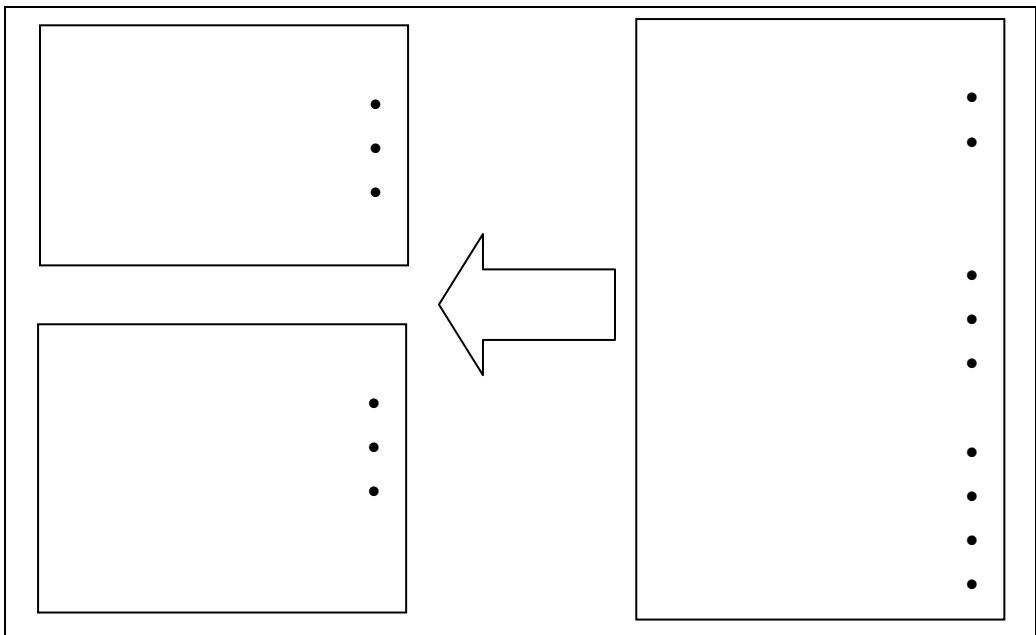
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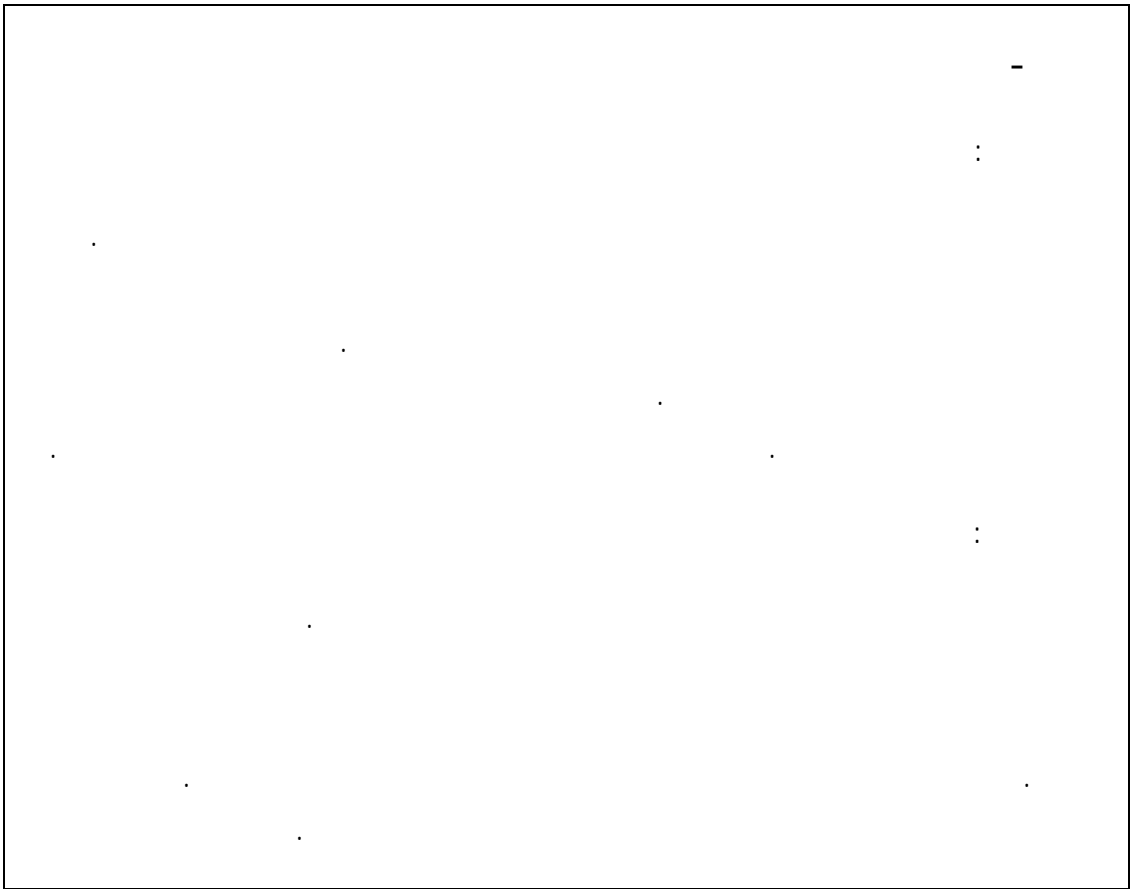
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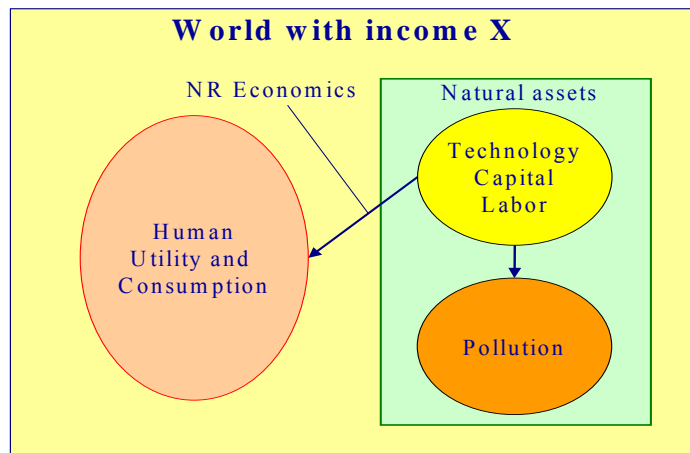
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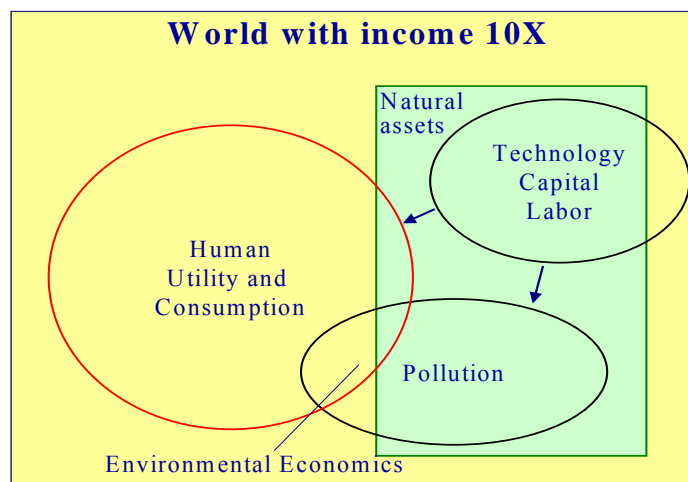
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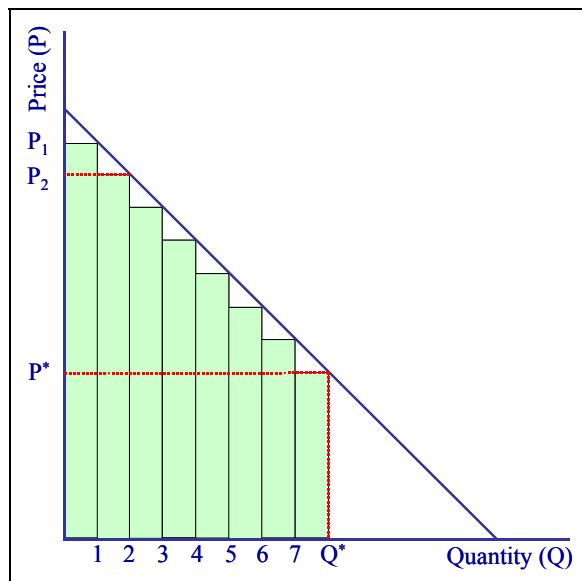
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Q^* P_1 P^*

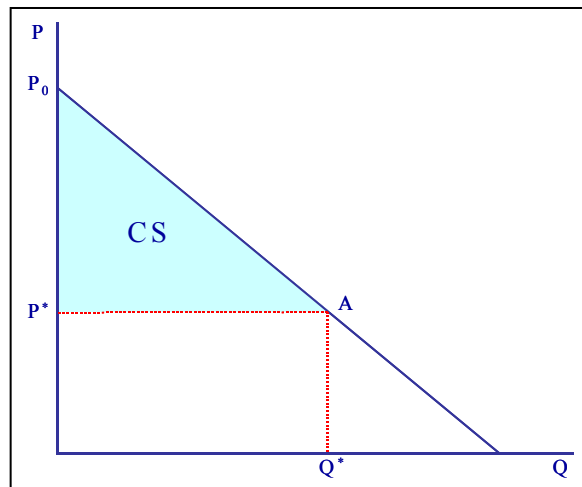
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P_1

P^*

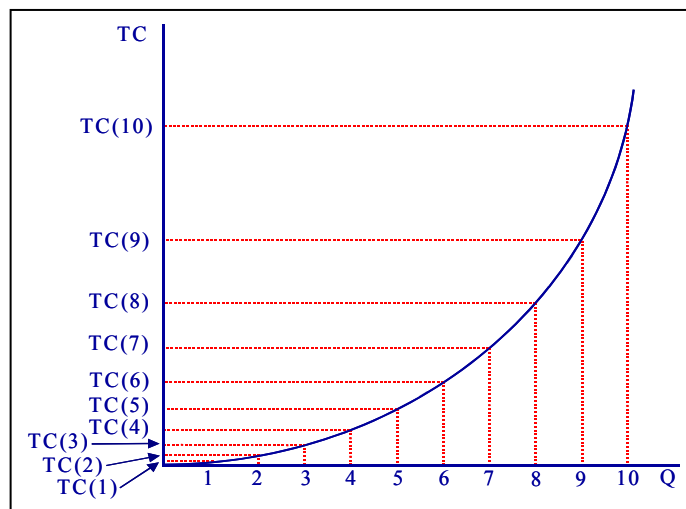
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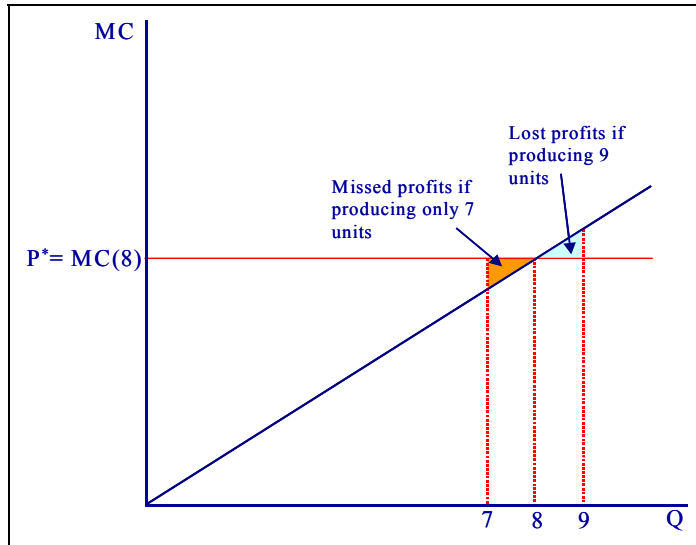
Q^* P^* P^*
 P_2 P_1
 P_1 P^* P_2
 P^* P^*

$$CS = 0.5 \cdot P^* \cdot A \cdot P_0 P^* :$$



$TC(0)$ $TC(1)$
 $TC(1)$ $TC(2)$

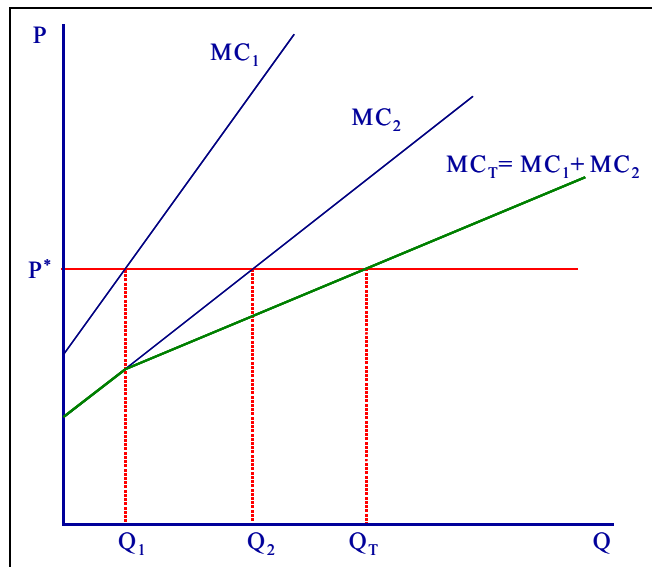
 $TC(9)$ $TC(10)$



P^*

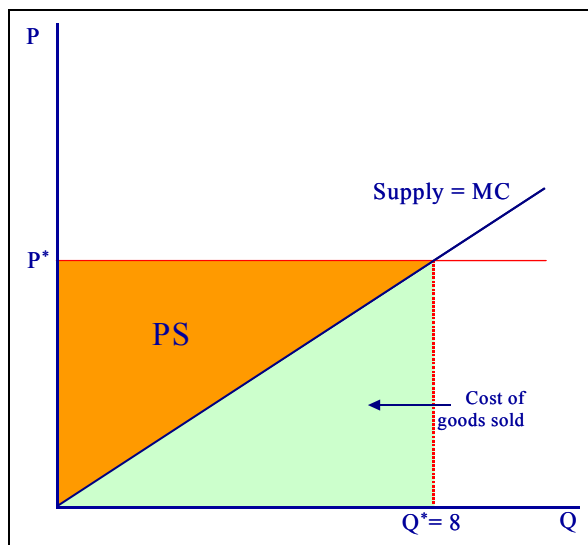
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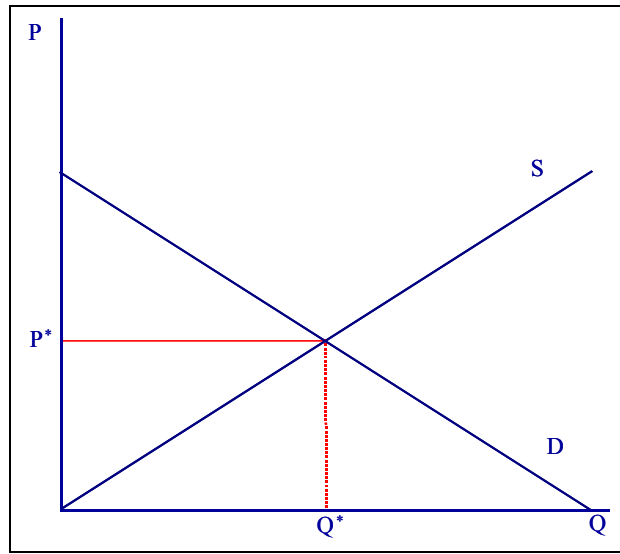
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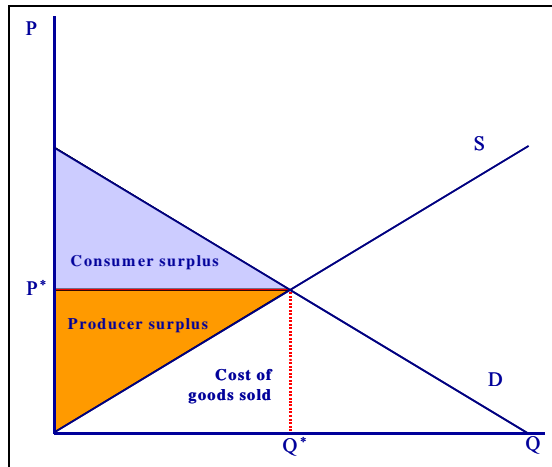
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Q^*



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Q^* P^*

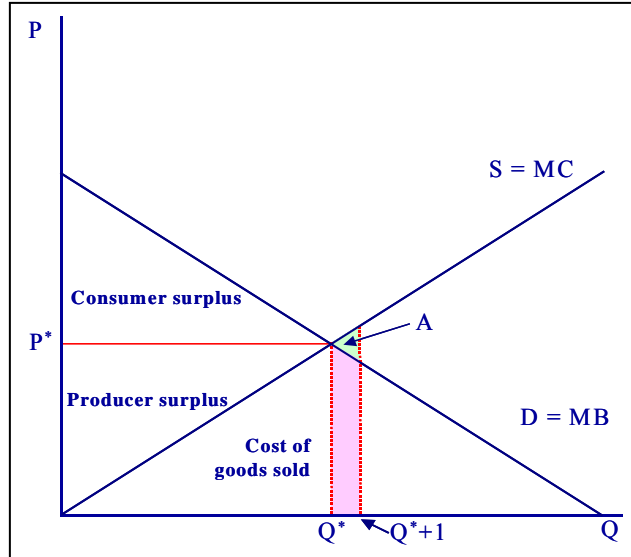
: $P = MC$ -

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Q^*

A $(Q^* + 1)$ Q^*



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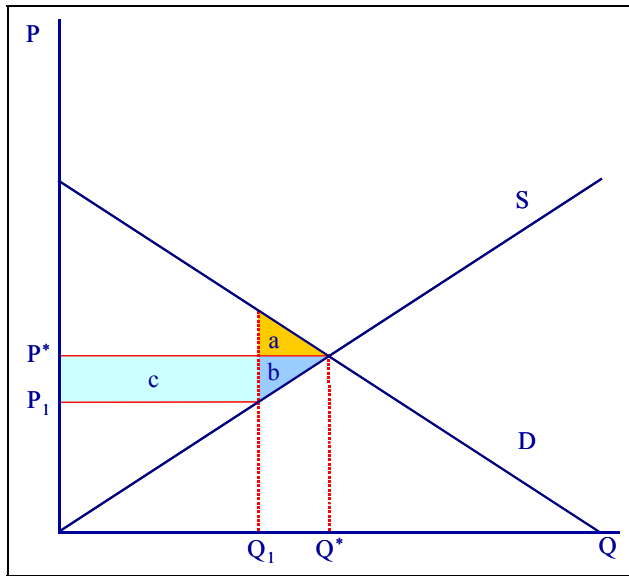
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- P^* () P_1 ()
 ($Q_1 < Q^*$) : (a + b)
 (c + b) : (c - a)
 c
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B A

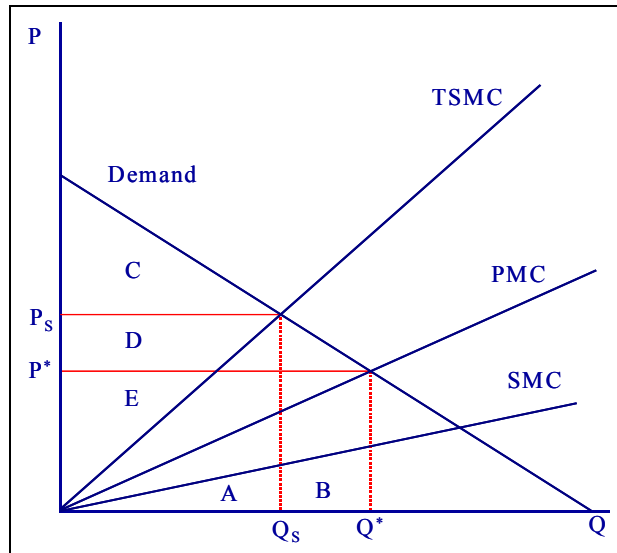
Q*

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Q_s



(P^*, Q^*) (P_s, Q_s)

Q^*

(P_s, Q_s)
 $C + D + E$

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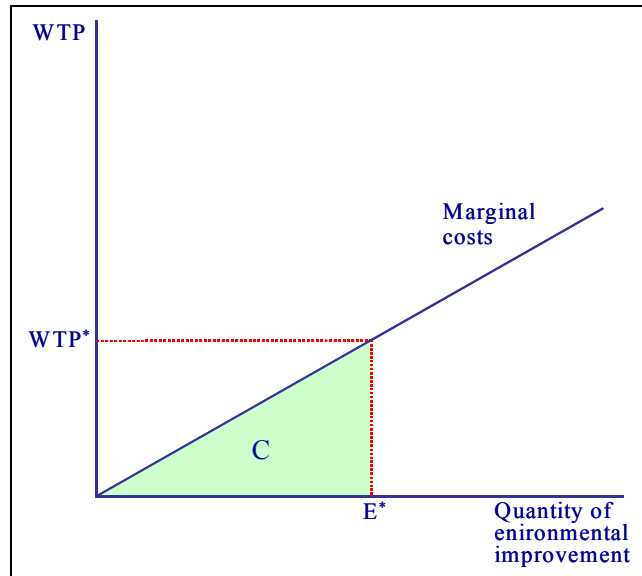
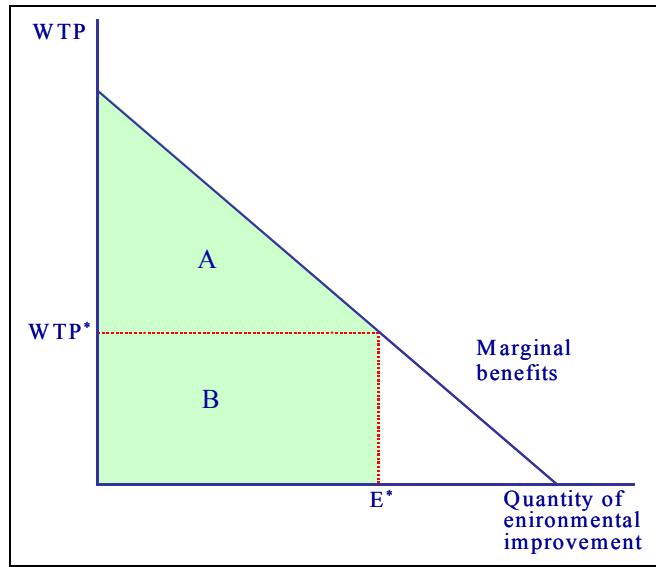
()

$A + B$

E^*

A

$A + B$



E*

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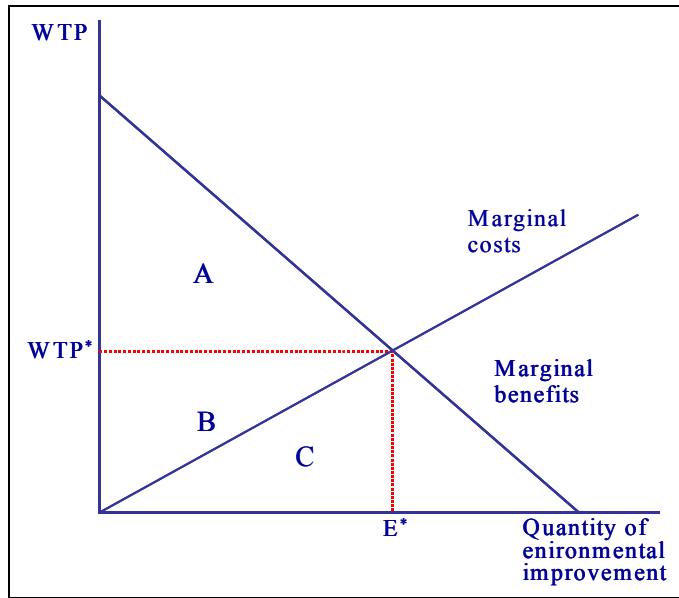
. (-)

(WTF*, E*)

. A + B + C

E*

. C E*



$$. TB - TC = NSB$$

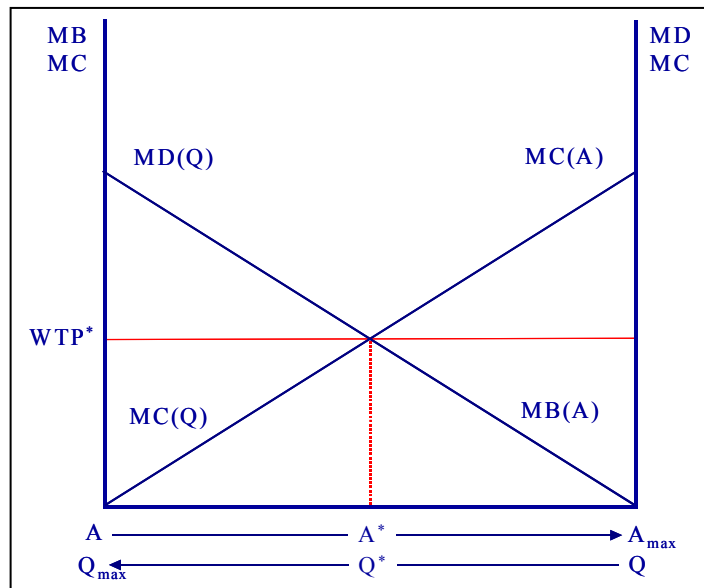
$$. TB - TC$$

$$. MC = MB$$

$$. A + B = A + B + C - C = NSB$$

E^*

E^*



Q

Q_{max}

MD(Q_{max})

Q

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MB = MC

MD = MC

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Q

MD (Q)

MD = 3Q

MC(Q)

MC = 45 - 3Q

[TD(Q) + TC]Q

MD = MC

3Q = 45 - 3Q

3Q + 3Q = 45

6Q = 45

Q = 7.5

Q

Q

:

MB(A)

$$MB = 45 - 3A$$

: MC(A)

$$MC = 3A$$

:

$$45 - 3A = 3A$$

$$6A = 45$$

$$A = 7.5$$

B A

(B)

X_{MAX}

(X_0)

X_{MIN}

AC

X_{MIN}

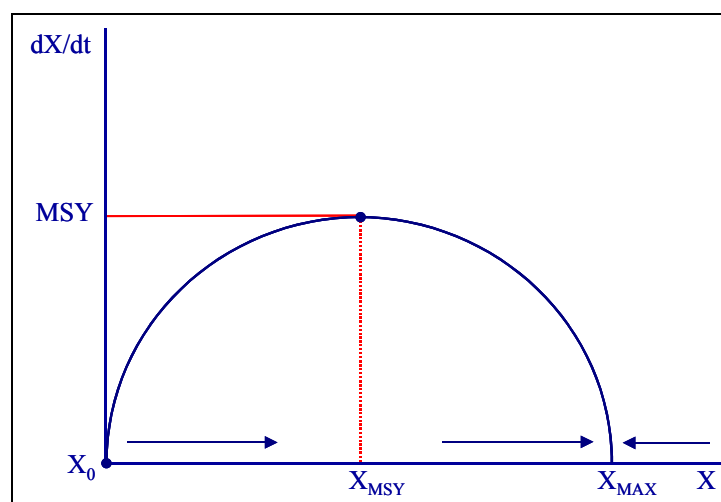
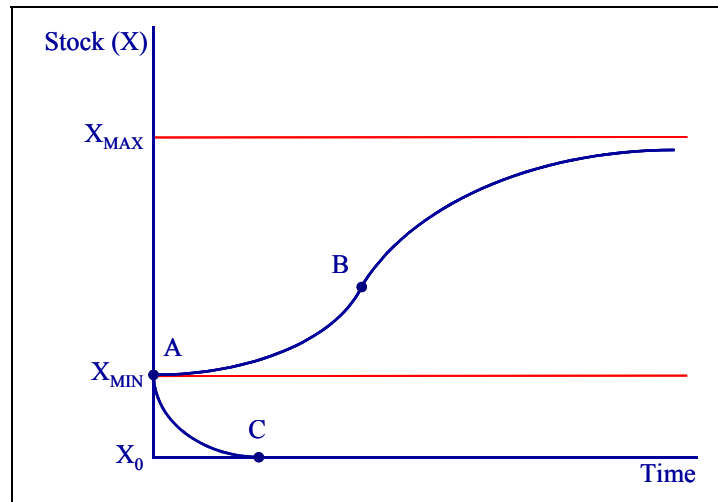
AC

X_{MIN}

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X

) dX/dt (AC
(- B)



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MSY

MSY

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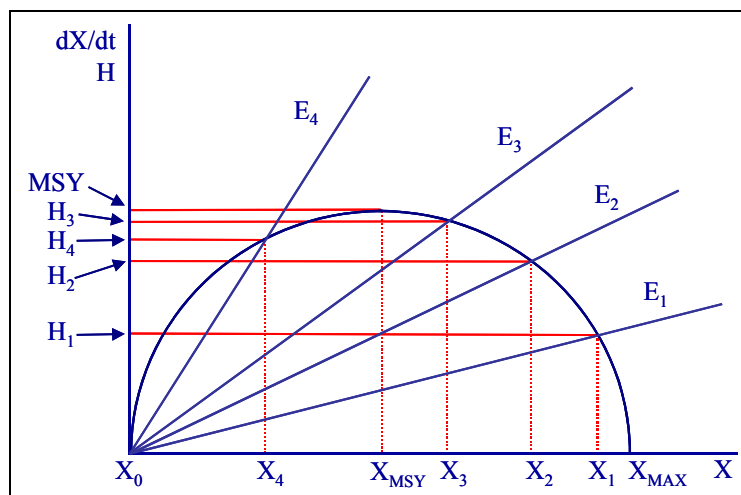
()

X

E_0

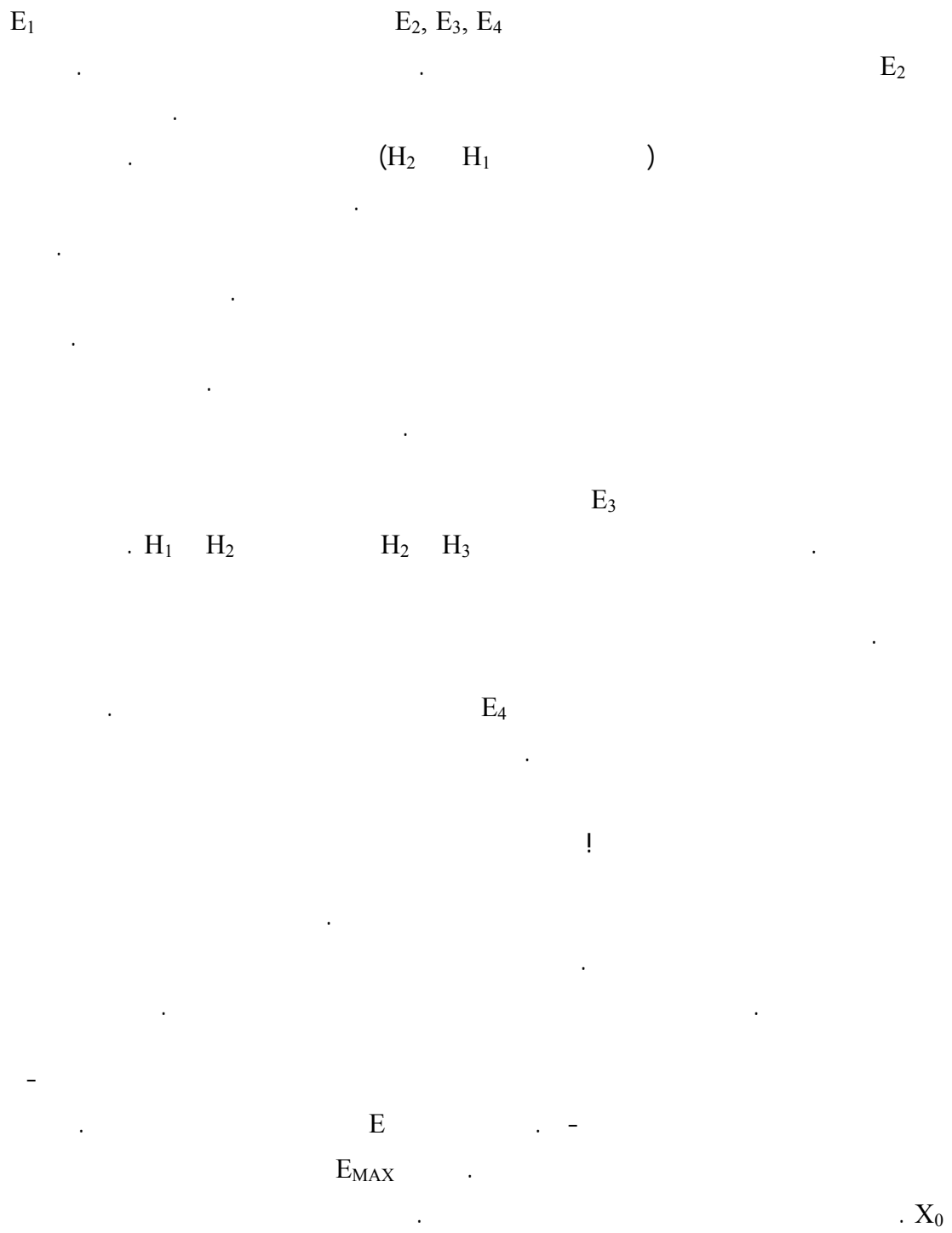
H_1

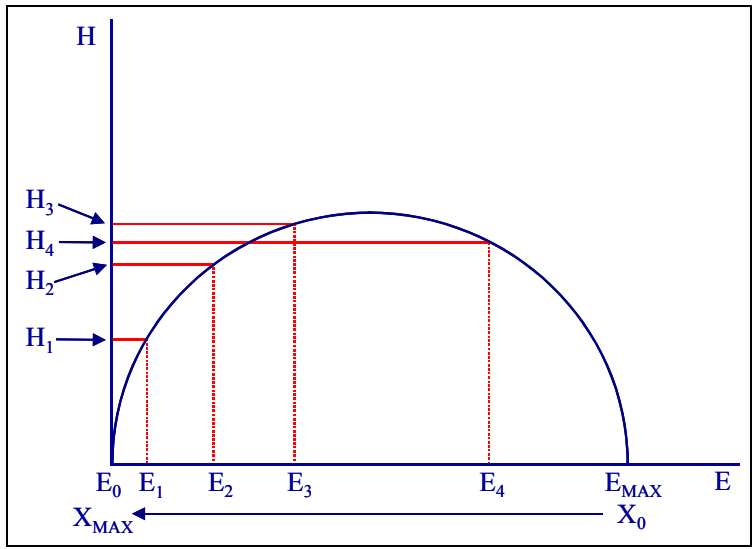
E_1



$H_0 = dX_0/dt$

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) () (

E₃

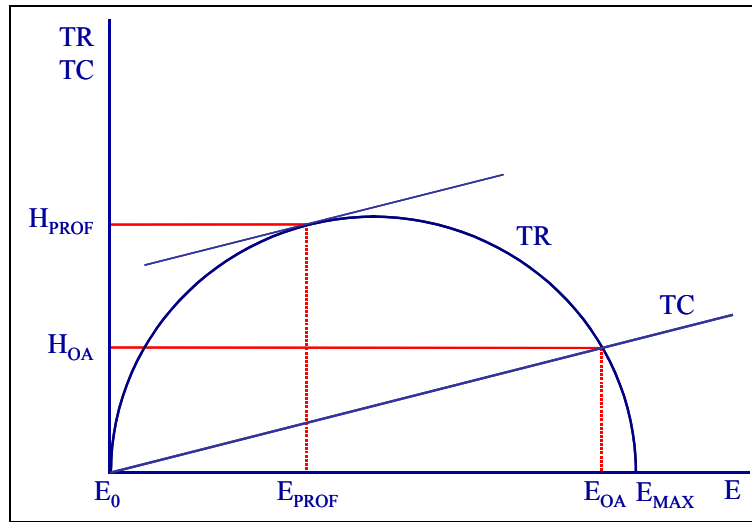
$$P \quad H$$

$$TR = P * H$$

$$TC = W * E$$

W

E



TR
 E_{PROF}
 E_{PROF}
 E_{MAX}
 TC
 E_{PROF}
 E_{MAX}
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 TR TC (EOA EOA
 E_{OA} E_{MAX} E_{OA} E_{OA}
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 E_{OA} ()
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$E_{OA} \quad E_{PROF}$

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$E_{OA} > E_{MSY} > E_{PROF}$

$H_{MSY} > H_{PROF} > H_{OA}$

$X_{PROF} > X_{MSY} > X_{OA}$

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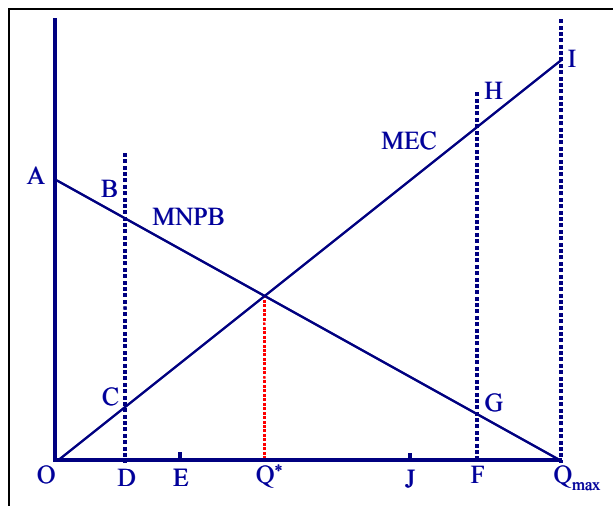
Q

(- MD(Q)) MEC

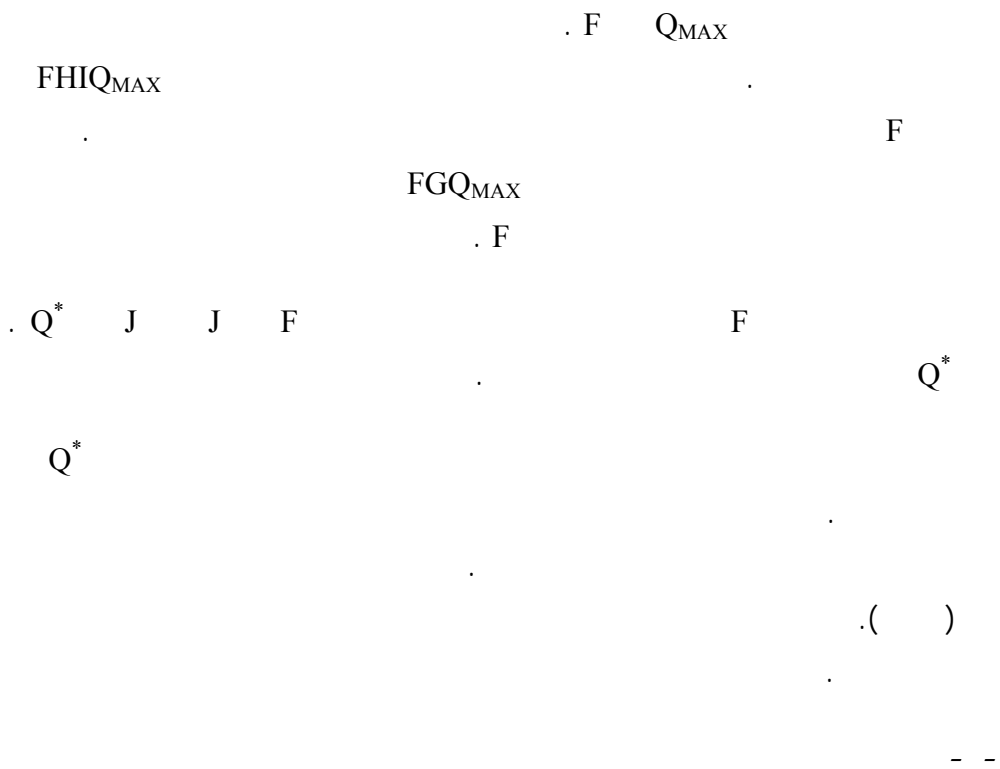
(MNPB)

. MC(A)

Q_{MAX}
 Q^*
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 D D
 $< OABD$ OCD $OABD$ OCD



OCD $OABD$
 D O D
 Q E D
 Q^*
 Q^*
 Q_{MAX}



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i (S₁, S₂) F_i

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F_2			
$' -$	$'$		F_1
$'$	$, -$		

$\cdot F_i(1,1)$

$\cdot (\quad)$ $($

$$F_i(2,-1) > F_i(1,1) > F_i(0,0) > F_i(-1,2) :$$

$$F_2(-1,2) > F_2(1,1) > F_2(0,0) > F_2(2,-1) :$$

$F_i(1, 1_$

$\cdot F_i(1,1)$

$F_i(1,1)$

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F ₂			
B	A		
(-1, -1)	(,)	A	F ₁
(2,1)	(-1, -1)	B	

A B
 B F₁)
F₂ B F₁ (F₂ A F₂
 B 1,2 A
(-) (2,1)
:

$$F_1(2,1) > F_1(1,2) > F_1(-1,-1) :$$

$$F_2(1,2) > F_2(2,1) > F_2(-1,-1) :$$

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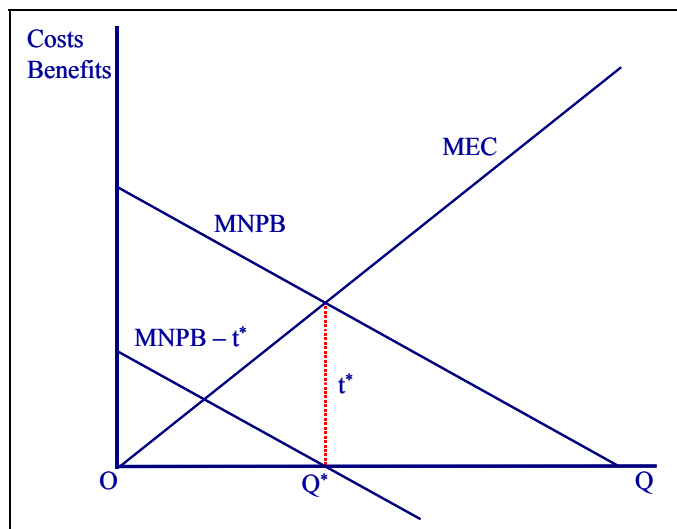
MEC

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MNPB

MEC

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MAC₁, MAC₂, MAC₃

MAC

MAC

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$S_1 S_2 = S_2 S_3$

$S_1 + S_2 + S_3 = 3S_2$

S₂

OS₂

C

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A

3S₂

X

t*

S₁

Y

B

(MAC₁ t*)

(MAC₁ t*)

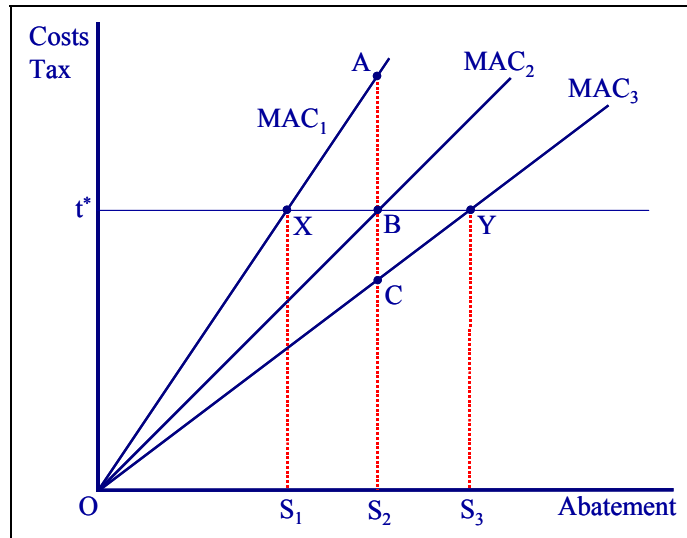
t*

S₁

3S₂

S₂

S₂



. 3S₂

: MAC

$$TAC_{st} = OAS_2 + OBS_2 + OCS_2 =$$

:

$$TAC_{tax} = OXS_1 + OBS_2 + OYS_3 =$$

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: TAX_{st} TAC_{tax}

$$TAC_{st} - TAC_{tax} = S_1XAS_2 - S_2CYS_3$$

S₂CYS₃

S₁XAS₂

$$TAC_{st} > TAC_{tax}$$

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W_{st}

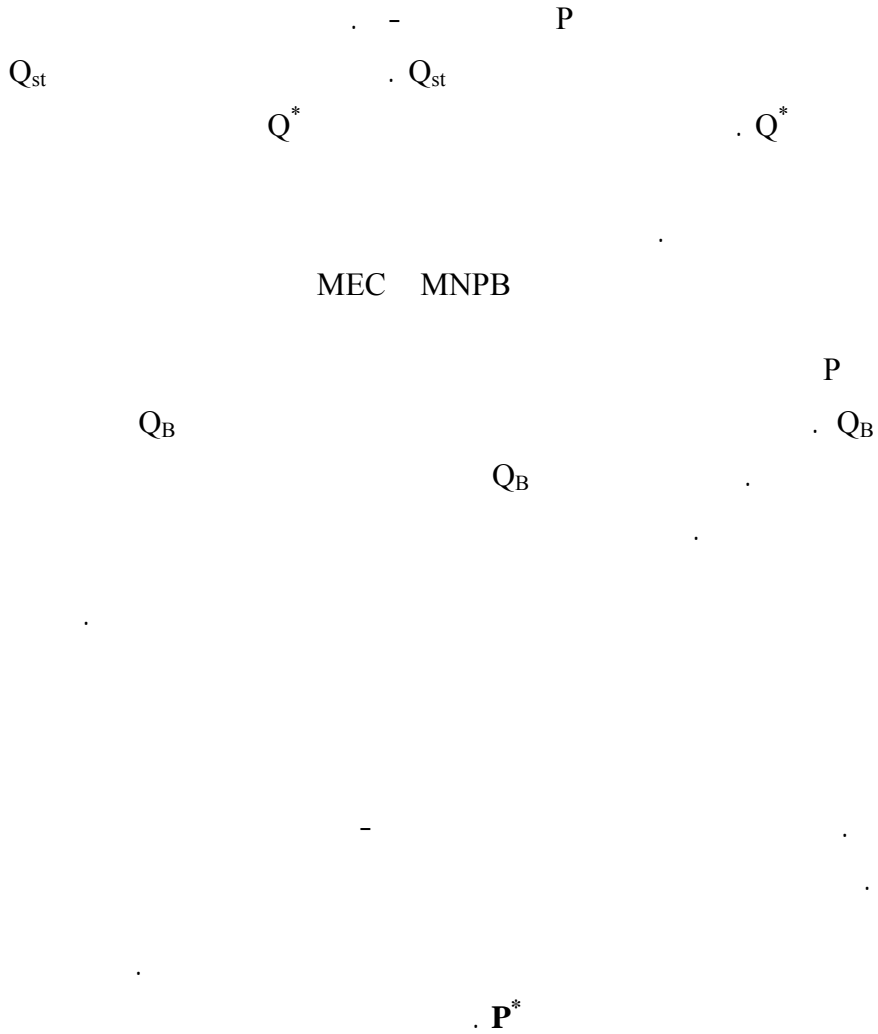
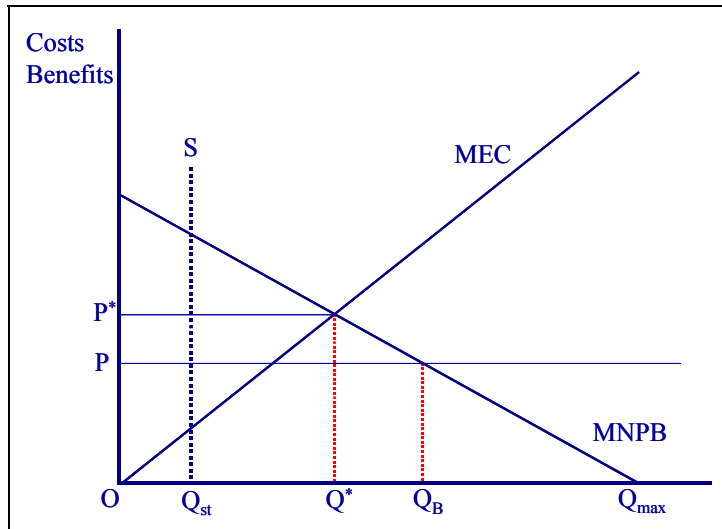
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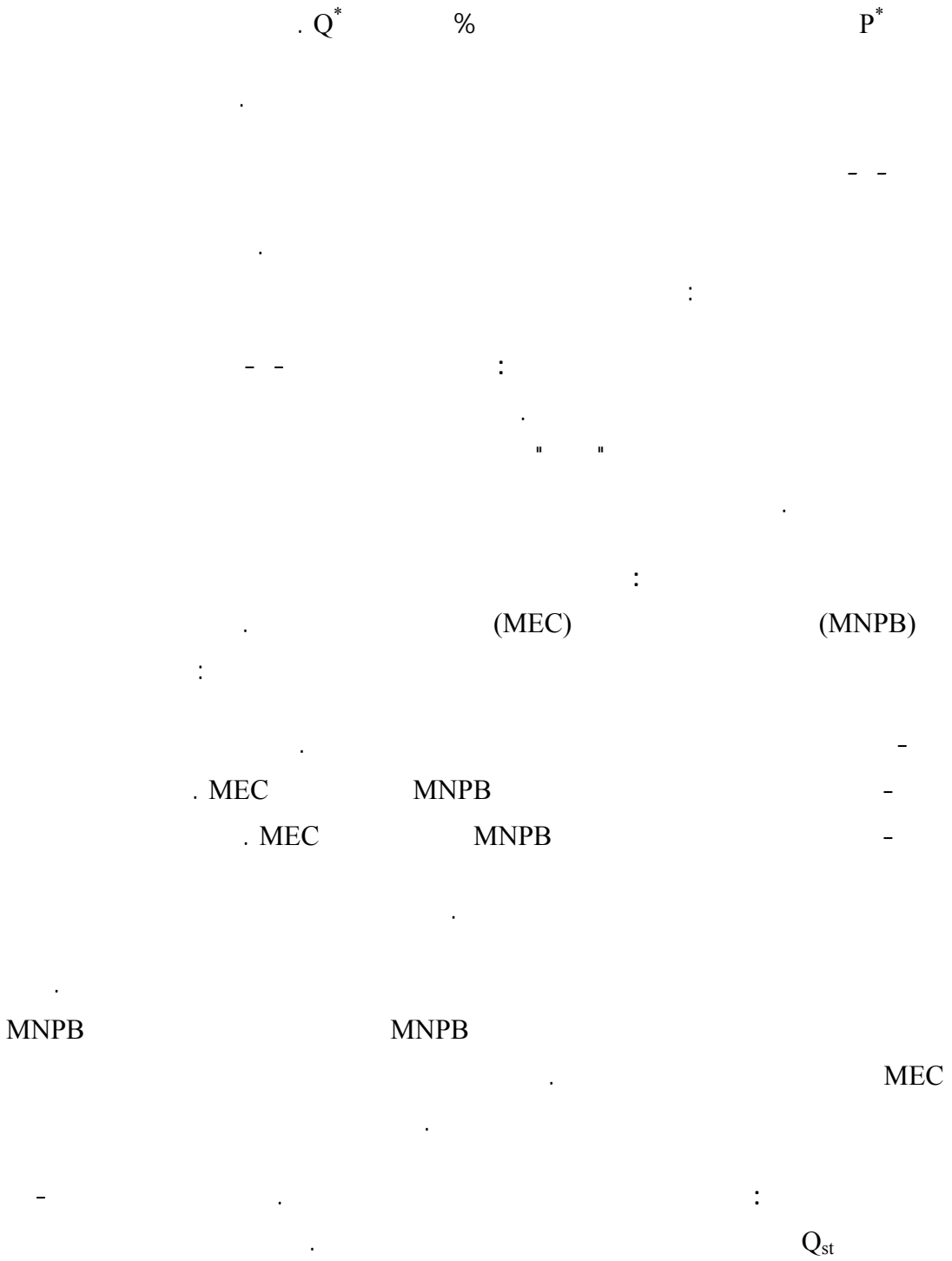
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Q_{st}

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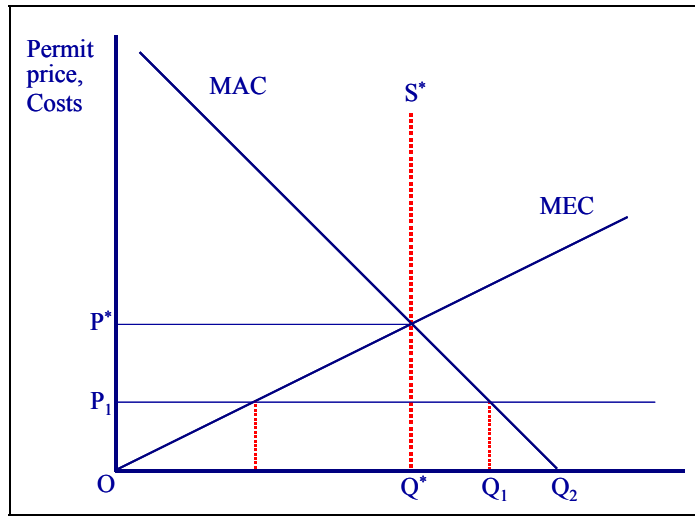
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MEC

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MAC

MNPB

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OP^*

OQ^*

S^*

OQ^*

MAC

OQ_1

P_1

Q_1

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Q_1

Q_2

MAC

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MEC

MAC

MAC

MAC

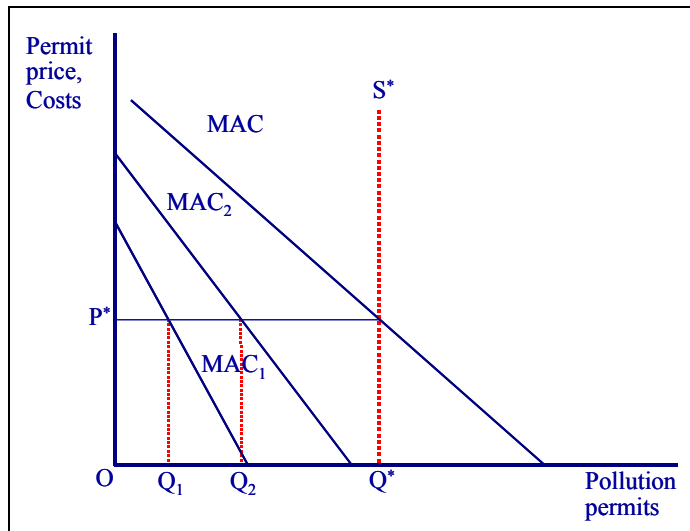
MAC

OQ_1

P^*

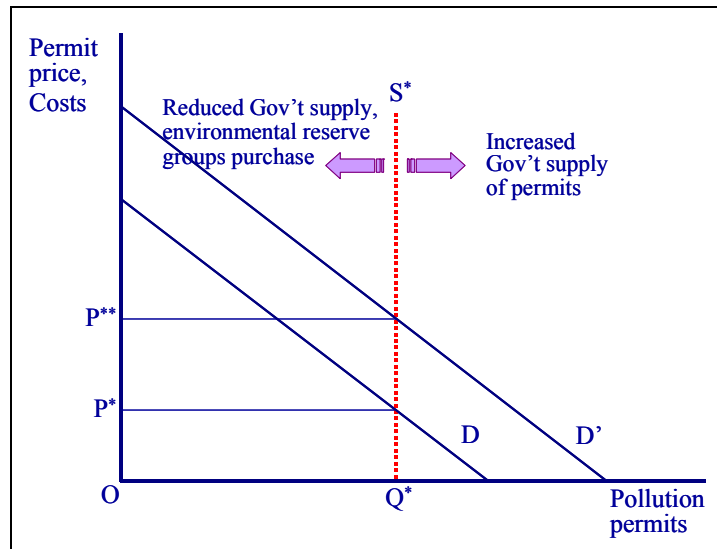
OQ_2

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$$\begin{array}{r}
 \text{(q)} \quad \text{(n)} \quad \text{(t)} \quad \text{(i)} \\
 \pi_t^1, t=1, \dots, n \quad \pi_t^2, t=1, \dots, n \\
 \text{---} \\
 \begin{array}{ccc}
 (\alpha_d p - \beta_d c) & \beta_d c & \alpha_d p \\
 (\alpha_c p - \beta_c c) & \beta_c c & \alpha_c p \\
 (\alpha_d - \alpha_c) p - (\beta_d - \beta_c) c & &
 \end{array} \\
 \text{c d} \quad \text{c p} \quad \text{B a}
 \end{array}$$

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$$\text{NPV} = \pi_0 + \frac{\pi_1}{1+i} + \frac{\pi_2}{(1+i)^2} + \dots + \frac{\pi_t}{(1+i)^t} + \dots + \frac{\pi_n}{(1+i)^n}$$

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$$1/(1+i)^t$$

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(C_t, R_t, π_t) B A (

$$DV_t = V_t / (1+i)^t$$

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	A						B					
	C_t	R_t	π_t	DC_t	DR_t	$D\pi_t$	C_t	R_t	π_t	DC_t	DR_t	$D\pi_t$
0	1,000	0	-	1,000	0	-	600	0	-	600	0	-
		1,000			1,000			600		600		600
1	385	858	473	350	780	430	242	572	330	220	520	300
2	363	823	460	300	680	380	230	545	315	190	450	260
3	346	785	439	260	590	330	213	519	306	160	390	230
4	337	747	410	230	510	280	205	498	293	140	340	200
5	322	725	403	200	450	250	193	483	290	120	300	180
	2,753	3,938	1,185	2,340	3,010	670	1,683	2,617	933	1,430	2,000	570

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) B A (

$$NPV = \sum_{t=0}^n \frac{\pi_t}{(1+i)^t} = \sum_{t=0}^n \frac{(R_t - C_t)}{(1+i)^t} = B - C$$

NPV_A=670 > NPV_B=570 A

B/C

$$B/C = \frac{\sum_{t=0}^n R_t / (1+i)^t}{\sum_{t=0}^n C_t / (1+i)^t}$$

B/Cπ1

$$B/C_A = 1.29 < B/C_B = 1.40 :$$

B

() A
A

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A B/C NPV

i	$C = \sum_t DC_t$	$B = \sum_t DB_t$	NPV	B/C
0.05	2,524	3,424	900	1.36
0.10	2,340	3,010	670	1.29
0.15	2,189	2,672	482	1.22
0.20	2,065	2,392	327	1.16
0.25	1,961	2,158	197	1.10
0.30	1,873	1,961	88	1.05
0.35	1,798	1,793	-6	1.00
0.40	1,734	1,648	-86	0.95
0.45	1,678	1,523	-155	0.91

()
 $0 \leq i < 19.86\%$ B A
 A B $i \geq 19.86\%$

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$$\text{IRR} = r: \quad \text{NPV} = \sum_{t=0}^n \frac{(R_t - C_t)}{(1+r)^t} = 0 \quad \text{B/C} = \frac{\sum_{t=0}^n R_t / (1+r)^t}{\sum_{t=0}^n C_t / (1+r)^t} = 1$$

$$B \equiv \sum_{t=0}^n \frac{R_t}{(1+r)^t} = \sum_{t=0}^n \frac{C_t}{(1+r)^t} \equiv C$$

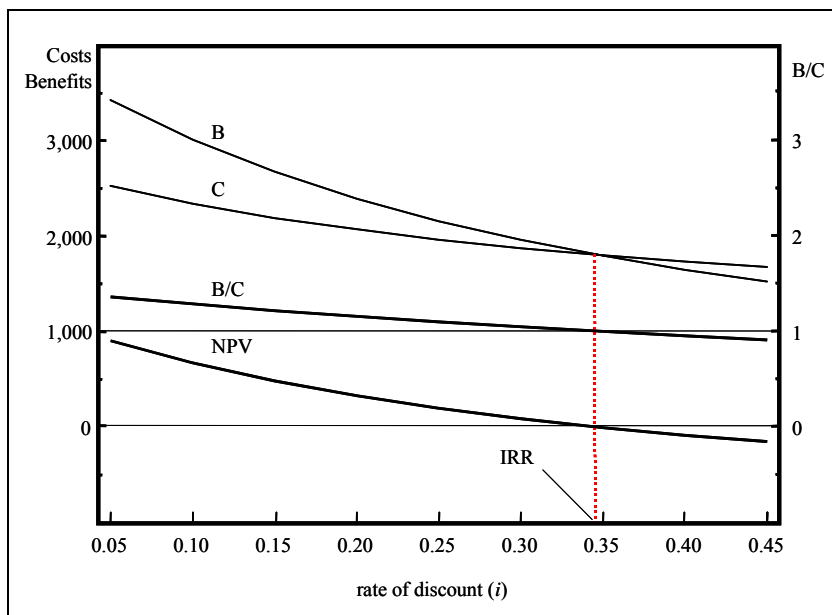
IRR_A=34.65%

A

B

IRR ≥ SRD

IRR_B=43.80%



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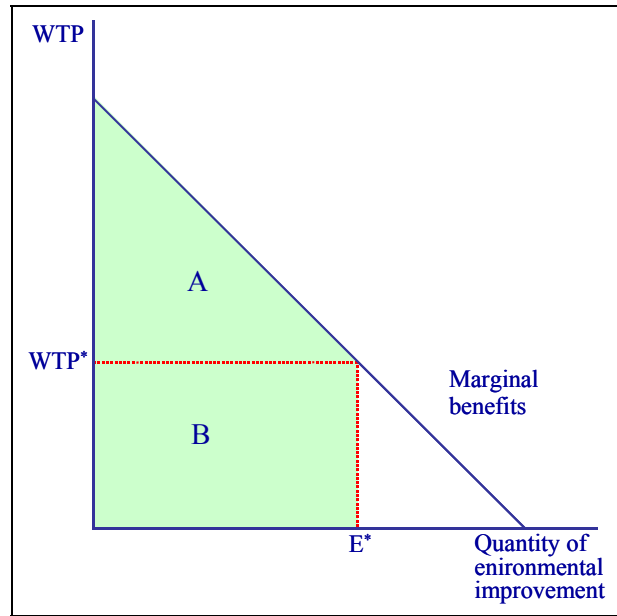
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(1)
$$\begin{aligned} \min_{\mathbf{x}} e &= \mathbf{p}\mathbf{x} \\ \text{s.t. } U &= f(z) \geq U^0 \\ z &= g(\mathbf{x}, q|T) \end{aligned}$$

$q \times \quad \mathbf{P} \quad \times$

$e(\mathbf{p}, q, U^0) \quad \cdot \quad T$

: $q \quad q$

(2)
$$\frac{\partial e}{\partial q} = -e_q(\mathbf{p}, q, U^0) = -h^{-1}(\mathbf{p}, q, U^0).$$

: $i \quad q^1 \quad () \quad -q^0$

(3)
$$V_i = -\int_{q^0}^{q^1} e_q(\mathbf{p}, q, U^0) dq,$$

q

(4)
$$V_i \equiv CS = e(\mathbf{p}, q^0, U^0) - e(\mathbf{p}, q^1, U^0),$$

:

(4)
$$\text{TEV} = \int_i \int_0^\infty V_i(t) e^{-rt} dt.$$

$z=g(\mathbf{x},q|T)$
 $z=g(\mathbf{0},q|T)$
 $x=0$
 $V(q)$
 $z_g(x,q|T)$
 $U=f(z)$
 $V(0)$
 x_j
 q
 x
 q
 T
 q
 x_j
 q

$$(B_D - C_D - B_P) > 0 : \quad -$$

$$(B_D - C_D - B_P) < 0 : \quad -$$

$$B_y \quad \quad \quad C_D \quad \quad \quad B_D$$

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$$B_p$$

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$$PP = f(\text{PROP}, \text{NHOOD}, \text{ACCESS}, \text{ENV})$$

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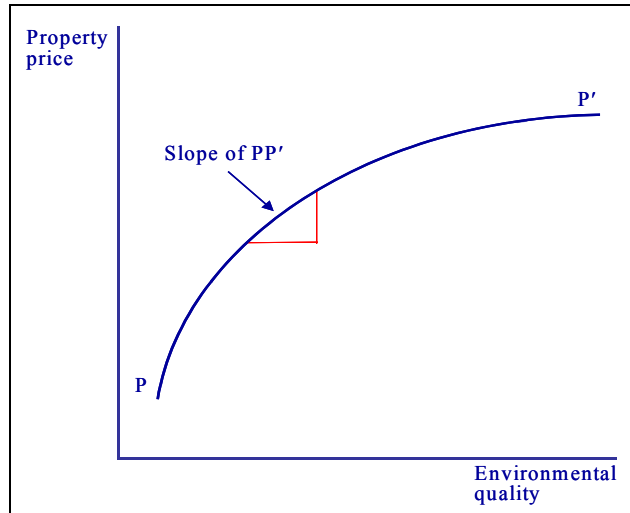
$$\ln(PP) = a \cdot \ln(\text{PROP}) + b \cdot \ln(\text{NHOOD}) + c \cdot \ln(\text{ACCESS}) + d \cdot \ln(\text{ENV})$$

ln(.)

d . a, b, c, d :

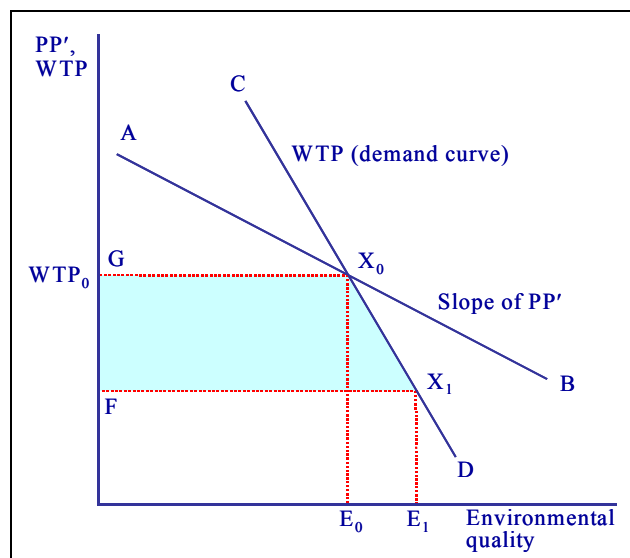
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E_0

E_0



E_0 E_0

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	Sulphation	(a) 1960	
	Particulates	(b) 1963	
	Particulates and sulphation	(a) 1964-67 (b) 1964 67	
	Particulates	(a) 1970	
	Oxidants	(b) 1967-68	
	Sulphation	(a) 1961 (b) 1961-67	-
	Sulphation	(a) 1960	
	Particulates	(b) 1969	
	Dustfall and sulphation	(a) 1970 (b) 1969	
	Particulates and oxidants	(a) 1977-78 (b) 1977-78	

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TC_{ij} (j=1,2,...,m) j k (i=1,2,...,n) i

$$(1) , K_j = \sum_i x_{ij} / A_j = \sum_i f(TC_{ij}, w_{ij})$$

(- - -) w_{ij}

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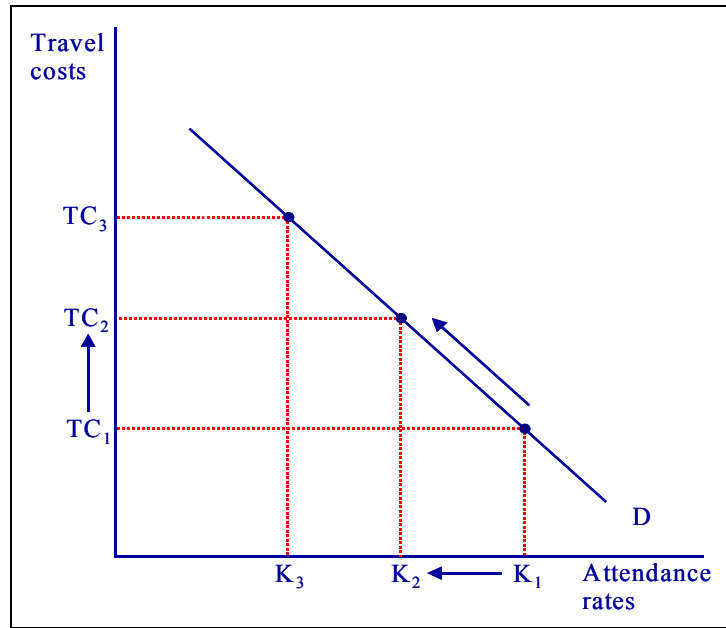
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D₁ TC₁ K₂ TC₂ K₂>K₁ TC₂>TC₁ P (TC₁+P)=TC₂ . K₂

j i x_{ij}

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. A_j j -60



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$$(2) \quad , x(P) = \sum_{ij} A_j f_i(TC_{ij} + P, w_{ij})$$

x(P)

:

$$(3) \quad , \sum_{ij} A_j \int_0^{P^*} f_i(TC_{ij} + P, w_{ij}) dP \Delta W =$$

$$f_i(TC_{ij} + P^*, w_{ij}) = 0, \forall ij \quad P^*$$

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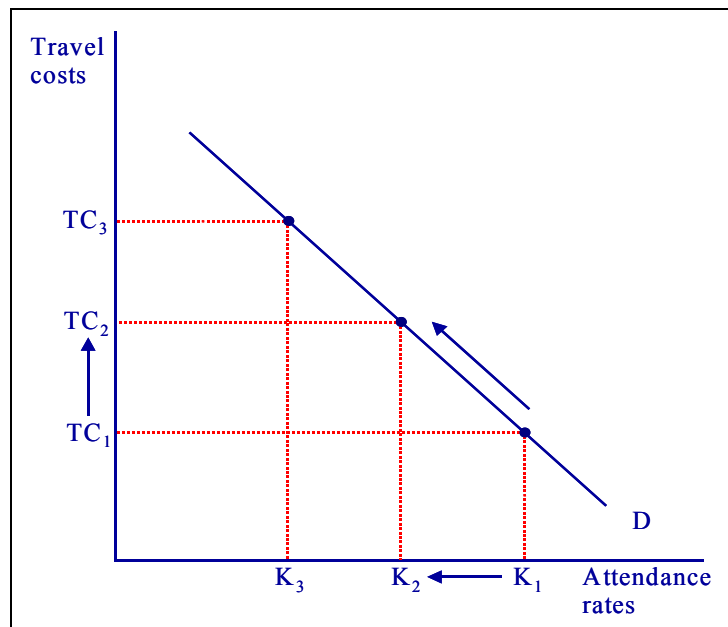
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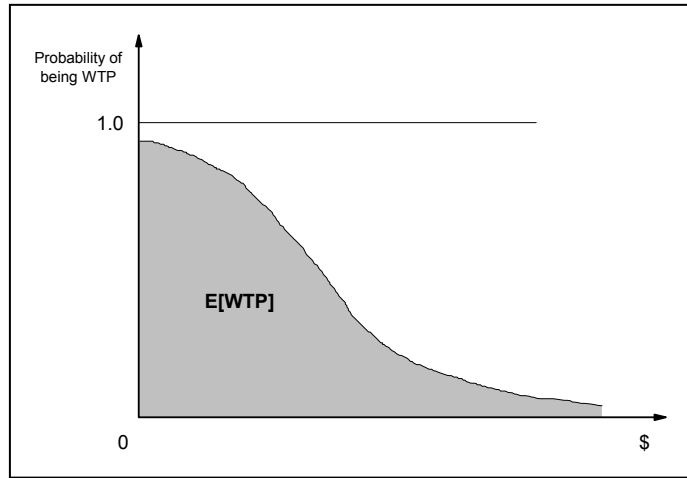
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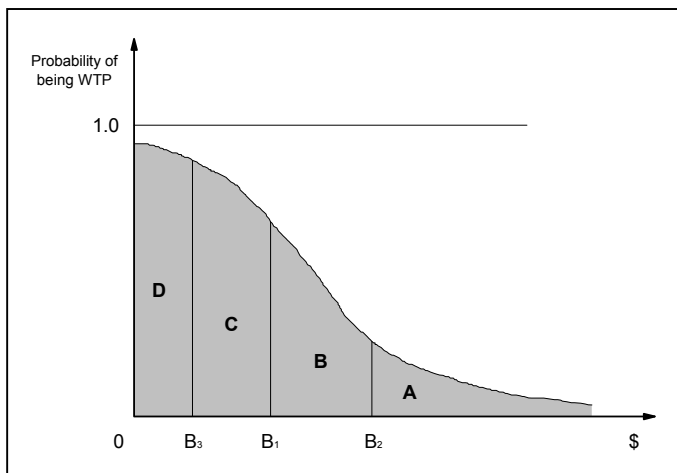
$$\Pr\{\text{response is "yes"}\} = 1 - G_c(A) = 1 - G\left(\frac{A - \mu}{\sigma}\right)$$

$G_c(\cdot)$	C	A
$\cdot 1/(1+e^{-x})$	$\Phi(x)$	
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0.8	40	50	1.00
0.5	20	40	5.00
0.4	8	20	10.00
0.3	3	10	15.00
0.2	1	5	25.00

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A	$WTP > B_2$	Yes/Yes
B	$B_1 < WTP < B_2$	Yes/No
C	$B_3 < WTP < B_1$	No/Yes
D	$0 < WTP < B_3$	No/No

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$$NNP^* = GNP - (R + A + N) - (D_m + D_n)$$

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b	b	a	b	b	a	
161	341	51	44	22	23	
153	152	27	78	36	12	
107	166	25	62	33	13	
942	338	97	64S	149	60	
126	292	29	2	9	1	
350	427	171	215	190 .4	119	
1,779	423	235	1,352	227	172	
78	180	17	10	13	4	
114	286	40	10	97	8	
47	227	34	1	5	14	
42	210	20	12	105	5	
94	741	88	51	522	70	
2,887	13,413	617	2,705	12,561	570	
48	200	21	3	35	5	

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5-35	
139	
11-251	
19-190	
42	
43	
72-138	
25-250	
25-70	
10-25	
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28	0.8	2.9	
24	12.0	50.0	
26	3.2	12.4	
19	4.0	21.5	

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